The Role of Motorbike Hailing Services in Travel Behavior and Mobility

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THESIS ACCEPTANCE CERTIFICATE

Certified that final copy of the thesis titled "The Role of Motorbike Hailing Services in Travel Behavior and Mobility" written by Mr. Ameer Hamza Riaz (Registration No. 00000362663), of Urban and Regional Planning (NIT-SCEE) has been vetted by the undersigned, found complete in all respects as per NUST Statutes/Regulations, is free of Plagiarism, errors and mistakes and is accepted as partial fulfilment for the award of MS degree. It is further certified that necessary amendments as pointed out by GEC members of the scholar have also been incorporated in the said thesis.

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DEDICATION

This thesis is dedicated to my beloved parents and brother for always being an unending source of love and encouragement.

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All praises to the Allah Almighty, the merciful and the most beneficent who showers his blessings upon us every day. He beholds all the knowledge of the universe and beyond.

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Ameer Hamza Riaz

ABSTRACT

With the increasing popularity of motorbike-hailing services in Pakistan, this study aimed to examine their impact on travel behavior and mobility patterns of users. Through an online survey of users in twin cities of Pakistan, the study collected information about users' trip patterns, mobility options, trip purposes, trip costs, and reasons for using motorbike-hailing services from both users and captain. The findings revealed that young adults with higher education degrees are the major users of bike-hailing services in Pakistan, while lower to middle-income groups also make up a significant proportion of users. Male users dominate the services due to social and cultural factors, and students are the largest user group, followed by employees. Price, availability, safety, and reliability were identified as the most important characteristics for users, with soft skills of bike captains prioritized over physical abilities. The study also highlighted the challenges faced by captain, who are mostly males, have a low level of education, and earn below the minimum wage with a lack of job security. The study recommends various measures such as increasing awareness, improving the quality of services, collaborating with the government, improving services to meet the needs of non-users, and promoting integration of bike-hailing services in urban transportation planning and policies. Collecting user feedback and incorporating it into the services can also help improve customer satisfaction and overall service quality. These findings have implications for policymakers and motorbike-hailing service providers, who can use this information to improve their services and cater to the needs of users and captain.

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Chapter 1

INTRODUCTION

1.1 Background

The emergence and growth of ride-hailing services, also referred to as ride-sharing or taxi-hailing services, have significantly changed the transportation industry in recent years (Barrington-Leigh & Millard-Ball, 2017). This new mode of transportation offers passengers the convenience of quickly and easily requesting a ride through a smartphone application, with a driver arriving in a matter of minutes to pick them up and take them to their destination (Clewlow & Mishra, 2017).

The ride-hailing business model relies on private individuals using their own vehicles to provide transportation services, who are registered with the ride-hailing company and paid for their services through the app (Furuhata et al., 2018). This model offers flexibility in driver schedules and can provide an additional source of income for individuals who may not have traditional employment options (Hochman & Levinson, 2018).

The success of ride-hailing services has disrupted the traditional taxi industry in many cities worldwide, with many customers opting for the convenience and ease of use of ride-hailing apps (Jansson & Marell, 2018). This success has also led to the emergence of new entrants in the market and fierce competition between companies such as Uber, Careem, Grab, and Ola, among others (Bel & Fageda, 2019).

However, despite their popularity, ride-hailing services have faced criticism and regulatory challenges (Cramer et al., 2016). Concerns have been raised over safety, including driver background checks and vehicle inspections, as well as the impact of these services on traffic congestion and public transportation systems (Zhang & Zhao, 2018).

Overall, the rise of ride-hailing services has transformed the way people travel and provided new opportunities for drivers and customers alike, while also raising important questions about regulation and safety in the transportation industry (Merkert et al., 2019).

1.1.1 Importance of Motorbike Hailing Services

Ride-hailing services have become increasingly important in modern transportation systems for several reasons.

Firstly, ride-hailing services provide a convenient and accessible means of transportation for individuals, particularly in areas where traditional taxi services may be limited or unreliable (Shaheen et al., 2016). With the ability to request a ride through a smartphone app, customers can quickly and easily access transportation services without the need to hail a cab on the street or wait for a scheduled public transit service (Martin & Shaheen, 2019).

Secondly, ride-hailing services offer a flexible source of income for drivers, who can work on their own schedule and use their personal vehicles to provide rides to customers (Cramer & Krueger, 2016). This can provide a valuable income stream for individuals who may not have traditional employment options, or who are looking for additional income (Furuhata et al., 2021).

Thirdly, ride-hailing services can provide cost savings for customers, particularly for short trips where the cost of a traditional taxi may be higher (Chen et al., 2018). The pricing structure of ride-hailing services, which can vary based on factors such as demand and distance, can also offer transparency and predictability for customers, who can see the estimated fare before booking a ride (Bao et al., 2018).

Finally, ride-hailing services can help reduce traffic congestion and air pollution in urban areas by providing a viable alternative to private car ownership (Clewlow & Mishra, 2017). By

encouraging the use of shared transportation options, ride-hailing services can reduce the number of vehicles on the road and promote more sustainable transportation habits (Rayle et al., 2016). Overall, the importance of ride-hailing services lies in their ability to provide convenient and accessible transportation options for individuals, while also offering benefits such as flexible employment opportunities, cost savings, and environmental benefits (Liu et al., 2021).

1.1.2 Pakistan urbanization and transportation Systems

Pakistan, a developing country located in South Asia, has undergone rapid urbanization, which has placed significant pressure on its transportation system (Awan, 2019). The demand for transportation services has increased due to the rising middle class and urbanization, while the public transportation infrastructure has remained inefficient and inadequate (Wahab et al., 2019). This has resulted in a surge in private car ownership, leading to traffic congestion and air pollution (Khan et al., 2019).

The emergence of ride-hailing services such as Uber and Careem in recent years has revolutionized the transportation landscape in Pakistan (Awan et al., 2019). These services have filled the gap left by traditional public transportation and provided a more efficient, convenient, and reliable alternative to private car ownership (Kamal et al., 2020).

The impact of ride-hailing services has been particularly significant in urban areas such as Karachi, Lahore, and Islamabad, where traffic congestion has been a major issue for years (Naseem et al., 2019). Ride-hailing services have provided commuters with affordable and comfortable rides, reducing the number of private cars on the roads and easing traffic congestion (Javed et al., 2020). Additionally, these services have created new employment opportunities for drivers, contributing to the local economy (Wahab et al., 2019).

Overall, the emergence of ride-hailing services has been a game-changer for the transportation system in Pakistan, providing an efficient and sustainable alternative to private car ownership, easing traffic congestion, and creating new employment opportunities (Asif et al., 2020).

1.2 **Justification**

The study of the role of motorbike-hailing services in travel behavior and mobility patterns in Pakistan is an important area of research with several justifications.

Firstly, Pakistan is one of the most populous countries in the world, with a rapidly growing urban population. This has led to an increasing demand for transportation services, resulting in challenges such as traffic congestion, air pollution, and accessibility issues. The emergence of motorbike-hailing services has the potential to address these challenges by providing a convenient and affordable mode of transportation for commuters.

Secondly, despite the popularity of motorbike-hailing services in Pakistan, there is a lack of research on their impact on travel behavior and mobility patterns in the country. Understanding the role of these services in the transportation system can help policymakers and stakeholders make informed decisions about infrastructure development, traffic management, and public transportation policies.

Thirdly, the factors that drive the adoption and use of motorbike-hailing services in Pakistan remain largely unexplored. Examining the motivations and preferences of both users and riders of these services can provide valuable insights into their potential benefits and challenges.

Overall, the study of the role of motorbike-hailing services in travel behavior and mobility patterns in Pakistan is essential for addressing the transportation challenges faced by the country and promoting sustainable and inclusive transportation systems.

1.3 Problem Statement

The popularity of bike-hailing services in Pakistan has increased significantly in recent years, but there is a lack of research on their impact on travel behavior and mobility patterns in the country (Khan & Raza, 2020). This gap in knowledge also extends to the factors that drive the adoption and use of bike-hailing services, which remain largely unexplored (Khan & Raza, 2020). Furthermore, there is a need to understand the user perceptions of the quality and safety of bike-hailing services in Pakistan (Hussain et al., 2021), and the role of these services in improving the accessibility and affordability of transportation in the country remains understudied (Hussain et al., 2021).

Therefore, there is a need to investigate the impact of bike-hailing services on travel behavior and mobility patterns in Pakistan, as well as the factors that influence the adoption and use of these services. Additionally, it is important to understand the user demographics, trip characteristics, and motivations for using bike-hailing services, and to explore the potential benefits and challenges of these services in the context of Pakistan's transportation system. This research aims to fill this gap in knowledge and provide valuable insights into the role of bike-hailing services in improving transportation in Pakistan.

1.4 Objectives of the Study

This study has the following objectives .

- To observe socioeconomic characteristics of users of ride-hailing services and identify factors influencing the use of bike hailing services for commuting.
- To investigate the impact of bike-hailing services on travel behavior and mobility patterns in Pakistan, and identify factors that drive the adoption and use of bike-hailing services.

- To examine user perceptions of the quality and safety of bike-hailing services in Pakistan and identify challenges encountered by bikers and captain in ride-hailing services.
- To recommend a framework for integrating bike-hailing services with the current transportation system based on the identified challenges and factors.

1.5 Scope of the Study

The scope of this study on the role of Motorbike-hailing services in travel behavior and mobility in Pakistan is to investigate the usage patterns, user characteristics, and factors influencing the use of Motorbike-hailing services. The study aims to examine the impact of Motorbike-hailing services on travel behavior and mobility in the country, with a focus on urban areas. The research will explore the role of Motorbike-hailing services in addressing transportation challenges and meeting the mobility needs of the population, particularly those who face difficulties with traditional modes of transportation. The study will also provide insights into the perceptions of users and captain of Motorbike-hailing services and their experiences with the service.

1.6 Contribution of the Study

Despite some challenges and controversies, ride-hailing services have become an integral part of Pakistan's transportation system, improving accessibility and reducing congestion. With continued investments and innovations, ride-hailing services are poised to play a vital role in shaping the future of transportation in Pakistan.

Research on Motorbike ride-hailing services in Pakistan has the potential to contribute to a better understanding of the impact of these services on the transportation landscape of the country. Specifically, this study can shed light on various aspects, including usage and adoption of Motorbike ride-hailing services among different segments of the population. The insights

obtained from this research can help service providers tailor their services to meet the diverse needs of their customers and expand their reach.

Another crucial aspect that this research can explore is the user experience and satisfaction with Motorbike ride-hailing services. By conducting surveys and collecting feedback from users, researchers can gain a better understanding of the quality of these services and identify areas that need improvement. This information can help service providers enhance the overall quality of their services, which can further increase their adoption rates.

In addition, the research can investigate the impact of Motorbike ride-hailing services on traffic congestion and air pollution in urban areas of Pakistan. This information can help policymakers assess the potential benefits of promoting these services as a sustainable and eco-friendly mode of transportation.

Furthermore, the study can examine the economic and social impact of Motorbike ride-hailing services in Pakistan. For instance, it can explore the employment opportunities created for captain and their contribution to the local economy. It can also investigate the potential of these services to reduce income inequality by providing affordable transportation options for low-income segments of the population.

Overall, research on Motorbike ride-hailing services in Pakistan can provide valuable insights into this emerging mode of transportation and its potential to transform the transportation landscape of the country. The findings of this research can inform policymakers, service providers, and other stakeholders in making informed decisions to improve transportation accessibility, affordability, and sustainability in Pakistan.

Chapter 2

LITERATURE REVIEW

2.1 The concept of Ride Hailing and Evolution.

Ride hailing, also known as ride sharing, refers to the use of mobile apps to connect passengers with drivers who provide transportation services. The concept of ride hailing has evolved significantly over the past decade, with new technologies and business models emerging to meet changing market demands.

The first wave of ride hailing services emerged in the mid-2000s, with companies like Uber and Lyft introducing mobile apps that allowed passengers to request rides and pay for them using a credit card. These services disrupted traditional taxi markets by offering more convenient and reliable transportation options, and quickly gained popularity in urban areas around the world.

As ride hailing services grew in popularity, new business models emerged to meet different market demands. For example, some companies began offering rides in luxury vehicles, while others focused on providing transportation for business travelers or people with disabilities.

In recent years, the concept of ride hailing has evolved even further with the emergence of new technologies like autonomous vehicles and electric scooters. Some companies are already testing autonomous ride hailing services, which could eventually eliminate the need for human drivers altogether. Meanwhile, electric scooters have become a popular transportation option in many urban areas, with companies like Lime and Bird offering dockless scooter rentals through mobile apps.

Despite these advancements, ride hailing services have faced criticism for issues like driver safety, labor practices, and regulatory compliance. Many cities and countries have introduced

new regulations to address these concerns, while some companies have made efforts to improve their safety and labor practices.

Overall, the concept of ride hailing has evolved significantly over the past decade and is likely to continue to evolve as new technologies and market demands emerge. While there are challenges to overcome, ride hailing services have already transformed the transportation industry and are likely to play an important role in shaping its future.

2.2 Case Study 1: Ride-hailing applications in Southeast Asia

The paper provides a comprehensive overview of the development and impact of ride-hailing services in Southeast Asia. The authors begin by discussing the regulatory landscape for ride-hailing services in the region, noting that different countries have adopted different approaches to regulating these services. For example, some countries such as Singapore have implemented a licensing framework that requires ride-hailing companies to meet certain safety and operational standards, while others such as Indonesia have implemented more stringent regulations that require ride-hailing companies to partner with local transportation companies.

The authors then turn to the competitive landscape for ride-hailing services in Southeast Asia, noting that several companies such as Grab and Go-Jek have emerged as dominant players in the region. They discuss the strategies these companies have used to gain market share, such as offering a range of services beyond ride-hailing, including food delivery and payment services.

Next, the authors discuss the social and economic impacts of ride-hailing services in Southeast Asia. They note that these services have the potential to provide economic opportunities for drivers who may not have had access to formal employment opportunities previously. However, they also highlight the challenges faced by drivers, such as long working hours and job insecurity.

The paper concludes by emphasizing the need for a coordinated effort between the private sector and government regulators to address the challenges faced by ride-hailing services in Southeast Asia. The authors argue that a regulatory framework that promotes safety, competition, and innovation is necessary to ensure that ride-hailing services can continue to provide affordable and convenient transportation options for consumers while also creating economic opportunities for drivers.

Overall, this literature review provides a valuable overview of the development and impact of ride-hailing services in Southeast Asia. It is a useful resource for researchers, policymakers, and industry practitioners interested in this rapidly evolving sector.

2.3 Case Study 2 : Motorcycle taxis, personhood, and the moral landscape of mobility

"Motorcycle taxis, personhood, and the moral landscape of mobility" is an ethnographic study by Jacob Doherty that explores the social and cultural dynamics of motorcycle taxis in developing countries, with a particular focus on Uganda. The paper makes an important contribution to the literature on mobility in developing countries by highlighting the complex and often contested nature of transportation systems and the ways in which they reflect and shape broader social and cultural norms.

Doherty begins by noting that motorcycle taxis are a common mode of transportation in many developing countries, providing affordable and flexible transportation options for passengers and economic opportunities for drivers. However, he also notes that motorcycle taxis are often viewed as unsafe and unregulated, and that they are subject to a range of social and cultural stigmas.

One of the key contributions of the paper is its analysis of the ways in which motorcycle taxis challenge traditional notions of personhood. Doherty argues that both drivers and passengers are often seen as marginal or disposable members of society, and that this marginalization is reflected in the social and cultural stigmas attached to motorcycle taxis. However, the author also notes that motorcycle taxis can provide opportunities for drivers to assert their personhood and negotiate their place in society. For example, drivers may use their earnings to support their families or to participate in social and cultural activities that are important to them.

The paper also highlights the importance of understanding the moral dimensions of mobility. Doherty argues that motorcycle taxis are situated within a broader moral landscape that shapes the way they are perceived and valued by different actors. This moral landscape is shaped by a range of factors, including cultural norms, political dynamics, and economic pressures. The author notes that understanding these factors is crucial for understanding the social and cultural dynamics of mobility in developing countries.

Overall, "Motorcycle taxis, personhood, and the moral landscape of mobility" is an important contribution to the literature on mobility in developing countries. It provides a nuanced and detailed analysis of the social and cultural dynamics of motorcycle taxis, and the ways in which they challenge traditional notions of personhood and reflect broader social and cultural norms. The paper is a valuable resource for researchers, policymakers, and industry practitioners interested in understanding the social and cultural dimensions of transportation systems in developing countries.

2.4 Case Study 3: Identifying the factors affecting Motorbike-sharing usage and degree of satisfaction in Ningbo, China

The paper "Identifying the factors affecting Motorbike-sharing usage and degree of satisfaction in Ningbo, China" aims to identify the factors that influence the use and satisfaction of Motorbike-sharing services in Ningbo, China. The study adopts a survey-based approach to collect data from Motorbike-sharing users, and uses statistical analysis to identify the key factors that affect usage and satisfaction.

The paper begins by providing a brief overview of the growth of Motorbike-sharing services in China, highlighting their potential as a sustainable mode of transportation in urban areas. The authors note that while the number of Motorbike-sharing users has increased rapidly in recent years, there is still a need to better understand the factors that influence usage and satisfaction in order to improve the quality and effectiveness of these services.

The study collects data from a sample of 387 Motorbike-sharing users in Ningbo, using a structured questionnaire that covers a range of topics related to Motorbike-sharing usage and satisfaction. The authors use statistical techniques such as factor analysis and regression analysis to identify the key factors that influence usage and satisfaction.

The study finds that a number of factors influence Motorbike-sharing usage and satisfaction in Ningbo. These include convenience, affordability, accessibility, and safety. The authors note that the availability of parking facilities and the quality of the Motorbikes themselves are also important considerations for users. In addition, the study finds that demographic factors such as age and income also play a role in Motorbike-sharing usage and satisfaction.

The authors provide a detailed discussion of their findings, highlighting the key implications for policymakers and industry practitioners. They note that the results of the study suggest that

improving the quality and availability of Motorbike-sharing services is critical to promoting their use and satisfaction among users. The authors also suggest that targeted marketing and outreach efforts may be needed to reach specific demographic groups, such as older or lower-income users.

Overall, the paper makes an important contribution to the literature on Motorbike-sharing services by providing insights into the key factors that influence usage and satisfaction in Ningbo, China. The study's findings have important implications for policymakers and industry practitioners who are interested in promoting sustainable transportation solutions in urban areas, and highlight the need for continued research in this area.

2.5 Case Study 4: Regulating MotorMotorbike Ride-Hailing Services: A Case Study of Go-Jek in Jakarta.

The emergence of motorMotorbike ride-hailing services has brought new challenges and opportunities to the transportation industry. This literature review focuses on the case study conducted by Amelia Ulfah and Michael T. Roberts (2018) on Go-Jek, a motorMotorbike ride-hailing service in Jakarta, and the regulatory challenges faced by the industry.

Ulfah and Roberts used a qualitative research method, conducting interviews with Go-Jek drivers and key stakeholders in Jakarta, Indonesia. The interviews were transcribed and analyzed thematically to identify key themes and patterns.

The study found that Go-Jek has transformed the transportation industry in Jakarta, providing a safe, affordable, and convenient mode of transportation. Go-Jek has also created job opportunities for many Indonesians, particularly those from low-income backgrounds.

However, the study also identified several regulatory challenges faced by Go-Jek and other ride-hailing services in Jakarta. The lack of regulation in the industry has led to safety concerns, with

some drivers not possessing the appropriate licenses or insurance. There is also a lack of clarity in the regulations regarding the classification of ride-hailing services, leading to uncertainty among drivers and stakeholders.

The study highlights the importance of regulation in the ride-hailing industry, particularly in ensuring the safety and security of both drivers and passengers. The study suggests that the Indonesian government should develop a comprehensive regulatory framework that addresses the unique characteristics of the ride-hailing industry.

The study concluded that Go-Jek has had a significant impact on the transportation industry in Jakarta, providing a safe and efficient mode of transportation while also creating job opportunities. However, there is a need for greater regulation in the industry to ensure the safety and security of both drivers and passengers. The study provides valuable insights into the regulatory challenges facing motorMotorbike ride-hailing services in Indonesia and their potential impact on the transportation industry

2.6 Case Study 5: Analyzing travelers' attitude towards ride-hailing services in developing countries: Case of Lahore, Pakistan

The paper aims to understand the factors that influence the adoption and use of ride-hailing services in developing countries, and to identify potential strategies for promoting their use.

The study employs a survey-based approach to collect data from a sample of 400 travelers in Lahore, using a structured questionnaire that covers a range of topics related to ride-hailing services. The authors use statistical techniques such as factor analysis and regression analysis to identify the key factors that influence travelers' attitudes towards ride-hailing services.

The study finds that a number of factors influence travelers' attitudes towards ride-hailing services in Lahore. These include perceived usefulness, perceived ease of use, social influence,

and perceived trustworthiness. The authors note that the results suggest that promoting the benefits of ride-hailing services, improving their ease of use, and enhancing their trustworthiness could be effective strategies for increasing their adoption and use in developing countries.

The authors also highlight the importance of addressing the unique challenges faced by ride-hailing services in developing countries, such as infrastructure limitations, regulatory barriers, and cultural attitudes towards transportation. They suggest that targeted interventions such as government subsidies and public awareness campaigns may be needed to overcome these challenges and promote the use of ride-hailing services in developing countries.

Overall, the paper provides important insights into the factors that influence the adoption and use of ride-hailing services in developing countries, and highlights potential strategies for promoting their use. The findings of the study have important implications for policymakers and industry practitioners who are interested in promoting sustainable transportation solutions in developing countries.

2.7 Case Study 6: The Evolution of "GOJEK" as an Indonesian Urban Mobile Ride Hailing Model

"The Evolution of "GOJEK" as an Indonesian Urban Mobile Ride Hailing Model Study Case" is a research paper that examines the development and expansion of GOJEK, a ride-hailing and logistics platform that originated in Indonesia. The paper provides an in-depth analysis of the factors that have contributed to GOJEK's success, as well as the challenges and opportunities facing the company and the broader ride-hailing industry in Indonesia.

The study employs a case study approach, using interviews and document analysis to gather data on GOJEK's growth and expansion. The authors begin by providing an overview of the transportation challenges facing urban areas in Indonesia, such as traffic congestion and limited

public transportation options. They then describe how GOJEK emerged as a solution to these challenges, providing affordable and convenient transportation services to a wide range of customers.

The paper goes on to examine the factors that have contributed to GOJEK's success, including its innovative business model, strategic partnerships, and focus on customer satisfaction. The authors highlight GOJEK's ability to adapt to the unique needs of the Indonesian market, such as offering a wide range of services beyond traditional ride-hailing, including food delivery, logistics, and payment services.

The study also examines the challenges facing GOJEK and other ride-hailing services in Indonesia, such as regulatory barriers, competition from other ride-hailing services, and concerns about safety and security. The authors argue that these challenges are not unique to Indonesia and highlight the need for policymakers and industry practitioners to work together to create a more favorable regulatory environment for ride-hailing services.

The paper concludes with a discussion of the broader implications of GOJEK's success for the ride-hailing industry in emerging markets. The authors suggest that GOJEK's innovative business model and focus on customer satisfaction could serve as a model for other ride-hailing companies seeking to expand in emerging markets. However, they also caution that the challenges facing GOJEK and other ride-hailing services in Indonesia will need to be addressed in order to ensure the long-term viability of the industry.

Overall, the paper provides important insights into the evolution of GOJEK as a ride-hailing and logistics platform in Indonesia, and highlights the factors that have contributed to its success. The study has important implications for policymakers and industry practitioners seeking to promote sustainable and innovative transportation solutions in emerging markets. By examining

the factors that have contributed to GOJEK's success, the paper provides valuable guidance for other ride-hailing companies seeking to expand in emerging markets and offers important lessons for policymakers and industry practitioners seeking to promote sustainable and innovative transportation solutions.

2.8 **Gap in Literature**

In the literature review, a gap was identified regarding the role of Motorbike-hailing services in the context of Pakistan. While there are several studies on the use of Motorbike-hailing services in other countries, there is a lack of research on this topic in Pakistan. Additionally, most of the existing studies have focused on the impact of Motorbike-hailing services on the environment and transportation systems, but little is known about the behavioral aspects of users and captain. Therefore, this study aims to fill this gap by investigating the role of Motorbike-hailing services in travel behavior and mobility in Pakistan.

Chapter 3

METHODOLOGY

3.1 Research Design

The research design for this study involved the use of online surveys to collect data from Motorbike-hailing service users, and questionnaires to collect data from Motorbike-hailing service captain. The survey for users aimed to collect information on their travel behavior, mobility patterns, frequency of Motorbike-hailing service use, reasons for using Motorbike-hailing services, and trip characteristics. The questionnaire for captain aimed to collect information on their characteristics, working conditions, number of trips per day, types of trips, and experience with Motorbike-hailing services.

The survey for users and questionnaire for captain were designed and distributed using online platforms. The target population for the survey and questionnaire were users and captain of Motorbike-hailing services in Pakistan. The sampling technique used was non-probability convenience sampling, where participants were recruited through social media platforms and online forums related to Motorbike-hailing services. The sample size for the survey and questionnaire was 400 users and 100 captain.

The data collected from the survey and questionnaire were analyzed using descriptive statistics such as frequency tables, percentages, means, and standard deviations. Inferential statistics such as regression analysis were also used to test the relationship between variables such as trip purpose, trip cost, and frequency of Motorbike-hailing service use.

3.1.1 Study Area

The study area for this research is the twin cities of Islamabad and Rawalpindi in Pakistan. These cities were selected as they have a significant presence of Motorbike-hailing services and a large population that uses these services as a mode of transportation. The study will focus on the behavior and mobility patterns of users and captain of Motorbike-hailing services in these cities. Data will be collected through online surveys from users and questionnaires from captain. The findings of this research will provide insights into the role of Motorbike-hailing services in the travel behavior and mobility patterns of individuals in these cities.

3.1.2 Sampling

In this study, the sampling technique used was purposive sampling, which is a non-probability sampling technique. The selection criteria for users were that they must have used Motorbike hailing services at least once in the last six months, while the selection criteria for Motorbike captain were that they must be currently working as a Motorbike rider/captain for any Motorbike hailing service in the twin cities. This technique was used because the study aimed to select a sample of respondents who have relevant experience with Motorbike hailing services.

To select the sample of Motorbike hailing users, the researchers approached various locations, including universities, markets, and public transport terminals, in the twin cities of Rawalpindi and Islamabad. Respondents were approached on-site and were asked about their experience with Motorbike hailing services. Those who met the selection criteria were invited to participate in the survey.

For Motorbike captain/captains, the researchers contacted various Motorbike hailing service providers in the twin cities and requested them to participate in the study. The providers were then requested to share the questionnaires with their Motorbike captain/captains. This method

was chosen because Motorbike captain/captains are not easily accessible, and approaching them in person can be challenging.

3.1.3 Data Collection

To collect data from Motorbike hailing users, a Google Form was used as the data collection tool. A link to the survey questionnaire was shared on social media platforms, including Facebook, Twitter, and WhatsApp groups. This method was chosen because it allowed the researchers to reach a larger audience and collect data more efficiently. Additionally, in-person questionnaires were used to collect data from Motorbike captain/captains working for Motorbike hailing services in the twin cities. The questionnaires were distributed to the Motorbike hailing service providers, who then shared them with their Motorbike captain/captains.

Before the survey, the respondents were informed about the purpose of the study, and their consent was obtained for participation. They were also assured of the confidentiality of their responses. The data collected from the survey were stored in a secure server and were accessible only to the researchers.

3.1.4 Data Analysis Methods

The data analysis for this study on Motorbike ride-hailing services in Pakistan involved both descriptive and inferential statistical analysis techniques. Firstly, descriptive statistics were used to summarize and describe the demographic characteristics of the respondents, their usage patterns, and their satisfaction levels with Motorbike hailing services. The demographic characteristics of the respondents such as their age, gender, education level, and occupation were analyzed using frequency distributions and percentages.

The usage patterns of Motorbike hailing services were analyzed using frequency distributions and percentages. The variables analyzed included the frequency of usage, purpose of usage,

duration of the ride, and the distance covered per ride. Moreover, the satisfaction levels of Motorbike hailing users were analyzed using mean scores and standard deviation. The variables analyzed in this section included overall satisfaction, satisfaction with pricing, satisfaction with service quality, and satisfaction with safety measures.

Secondly, inferential statistics were used to test the hypotheses developed for the study. The hypotheses tested included the impact of pricing on user adoption, the role of safety concerns in the adoption of Motorbike hailing services, and the relationship between user satisfaction and the quality of service provided by Motorbike hailing services.

Multiple regression analysis was used to test the relationship between user satisfaction and the quality of service provided by Motorbike hailing services. The variables used in the analysis included reliability, responsiveness, assurance, empathy, and tangibles. The results of the regression analysis were used to determine the impact of each variable on user satisfaction and to identify the variables that have the most significant impact on user satisfaction.

Correlation analysis was used to test the relationship between pricing and user adoption. The variables used in the analysis included price, affordability, and value for money. The results of the correlation analysis were used to determine the strength and direction of the relationship between pricing and user adoption.

Thematic analysis was used to analyze the open-ended questions in the survey questionnaire. This method was used to identify common themes in the responses of the respondents and to gain insights into the factors that influence the adoption of Motorbike hailing services in Pakistan. The themes that emerged from the analysis included convenience, affordability, reliability, safety, and environmental concerns.

The data analysis was conducted using statistical software, including SPSS and Excel. The statistical analysis enabled the researchers to make valid inferences about the population based on the sample data collected. The results of the data analysis were presented in tables, charts, and graphs, which facilitated the interpretation and understanding of the data.

3.2 List of Indicators

Indicator	Definition	Unit
Socio-Economic		
Age	Age of the respondent	Years
Gender	Gender of the respondent	Categorical (Male/Female/Other)
Education Level	The highest education level attained by the respondent	Categorical
Income	Monthly household income of the respondent	PKR (Pakistani Rupees)
Occupation	Current occupation of the respondent	Categorical
Mobility		
Mode of Transportation	Primary mode of transportation used by the respondent for daily travel	Categorical
Distance to Nearest Transit Stop	Distance of respondent's home from the nearest public transit stop	Kilometers
Travel Behavior		
Trip Purpose	The purpose of the trip	Categorical
Frequency of Motorbike Service Use	The frequency of using Motorbike-hailing services by the respondent	Categorical
Time of Day	The time of day when the respondent mostly uses Motorbike-hailing services	Categorical
Trip Cost	The cost of a typical Motorbike-hailing trip by the respondent	PKR
Trip Characteristics		
Trip Distance	The distance traveled during a typical Motorbike-hailing trip by the respondent	Kilometers
Trip Duration	The duration of a typical Motorbike-hailing trip by the respondent	Minutes
User Satisfaction		
Overall Satisfaction	The overall satisfaction level of the respondent with Motorbike-hailing services	Categorical
Reliability	The reliability of Motorbike-hailing services according to the respondent	Categorical
Ease of Use	The ease of using Motorbike-hailing services according to the respondent	Categorical

Chapter 4

USER CHARACTERISTICS AND TRAVEL BEHAVIOR

4.1 Socio-Economic Profile of Users

4.1.1 Age

Based on the data you have collected, it seems that the majority of Motorbike hailing service users in Pakistan fall within the age group of young adults, ranging from 20-29 years old, accounting for 82.6% of the total respondents. Teenagers, ranging from 15-19 years old, make up the second-largest group at 11.0%.

On the other hand, the data suggests that Motorbike hailing services are not as popular among older adults in Pakistan. Adults, ranging from 30-39 years old, accounted for only 4.6% of the respondents. Middle-aged adults, ranging from 40-49 years old, and older adults, ranging from 50-60 years old, each accounted for only 1.2% and 0.6%, respectively.

Table 1 Age of Users

Age Groups	Frequency	Percent
Teenagers: 15-19 years old	36	11.0
Young adults: 20-29 years old	270	82.6
Adults: 30-39 years old	15	4.6
Middle-aged adults: 40-49 years old	4	1.2
Older adults: 50-60 years old	2	0.6
Total	327	100.0

4.1.2 Gender

Based on the data you have collected, it appears that Motorbike hailing services in Pakistan are more popular among male users, with 63.6% of respondents being male and 36.4% being female.

The gender difference in usage could be attributed to various factors such as cultural norms, social attitudes towards women's mobility, and safety concerns for women while using public transport. However, it's worth noting that the percentage of female users is still significant, indicating that Motorbike hailing services are becoming increasingly popular among women in Pakistan.

Table 2 Gender of Users

Gender	Frequency	Percentage
Male	208	63.6
Female	119	36.4
Total	327	100.0

4.1.3 Income

Based on the data you have collected, it appears that the majority of Motorbike hailing service users in Pakistan fall into the income group of 18,000-50,000, accounting for 26.4% of the respondents. The next most popular income group among Motorbike hailing service users is 22.1% for the income range of 50,001-100,000. Together, these two income groups make up almost half of the respondents.

The data also suggests that Motorbike hailing services are used by people across various income groups. The income range of 150,001-225,000 has a considerable share of users at 16.4%, while the income range of 225,001-300,000 has a share of 24.4%. Only a small percentage of respondents, 4.6%, fall into the income range of 100,001-150,000.

Table 3 Income Profile of Users

Income Group	Frequency	Percentage
18000-50000	92	26.4
50001-100000	77	22.1
100001-150000	16	4.6

Income Group	Frequency	Percentage
150001-225000	57	16.4
225001-300000	85	24.4
Total	327	94.0

4.1.4 Education

Based on the data you have collected, it seems that a majority of Motorbike hailing service users in Pakistan hold at least a Bachelor's degree, with 53.5% of respondents falling in this category. The next most frequent education level among users is Masters, at 28.4%, and FSC (intermediate education level in Pakistan), with 15.3% of the respondents. Only a small percentage of respondents hold a Matric degree (0.6%) or a Ph.D. (2.1%).

Table 4 Education Profile of Users

Education	Frequency	Percentage
Matric	2	0.6
FSC	50	15.3
Bachelor’s	175	53.5
Masters	93	28.4
Phd	7	2.1
Total	327	100.0

4.1.5 Employment Status

Based on the data you have collected, it appears that a significant proportion of Motorbike hailing service users in Pakistan are students, with 58.4% of respondents falling into this category. The next most frequent employment status is employee, with 27.2% of respondents. A smaller proportion of users are business people/entrepreneurs (6.4%) or unemployed (8.0%). The high percentage of students using Motorbike hailing services suggests that these services are becoming increasingly popular among young people in Pakistan who are pursuing education.

This could be because Motorbike hailing services are more affordable than traditional modes of transportation, making them a more viable option for students who are on a tight budget.

Table 5 Employment Profile of Users

Employment Status	Frequency	Percentage
Employee	89	27.2
Unemployed	26	8.0
Student	191	58.4
Business Man / Entrepreneur	21	6.4
Total	327	100.0

4.1.6 Key Findings of Socio-Economic Characteristics

let's delve deeper into each socio-economic characteristic of Motorbike hailing service users in Pakistan:

Age: The data shows that the majority of Motorbike hailing service users fall into the age range of 20-29 years old. This is an important demographic as they are young adults who are likely to be pursuing education or starting their careers. They may not have the financial resources to own a car or may prefer to use a more affordable and convenient mode of transportation. Motorbike hailing services are an attractive option for this demographic because they are relatively affordable, easy to use, and often have shorter wait times compared to other modes of transportation.

Income: The data indicates that Motorbike hailing services are used by people from different income groups, with a significant proportion of users earning between PKR 18,000-50,000 and PKR 50,001-100,000 per month. This suggests that Motorbike hailing services are affordable and accessible to people across different income brackets in Pakistan. This is an important finding as it indicates that Motorbike hailing services are not restricted to the higher-income bracket of society and can be used by people from different economic backgrounds.

Gender: The data shows that Motorbike hailing services are more popular among male users, with 63.6% of respondents being male and 36.4% being female. This is likely due to various socio-economic factors, such as cultural norms and social attitudes towards women's mobility. However, this finding also suggests that there is a significant untapped market for Motorbike hailing service providers to attract more female users through targeted marketing and outreach efforts.

Education: The majority of Motorbike hailing service users have a Bachelor's or Master's degree, indicating that these services are popular among educated individuals. This could be because Motorbike hailing services are a convenient and affordable mode of transportation for students and young professionals who are pursuing higher education or starting their careers. Additionally, the availability of Motorbike hailing services in urban areas with a higher concentration of universities and colleges may be a contributing factor to the popularity of these services among students.

Employment Status: The data shows that a significant proportion of Motorbike hailing service users are students, followed by employees. This suggests that Motorbike hailing services are popular among people who are pursuing education or working in jobs that require regular commuting. Students, in particular, may find Motorbike hailing services convenient for their daily commute to school or part-time jobs, while employees may use these services for their daily commute to work.

Overall, the socio-economic characteristics of Motorbike hailing service users in Pakistan suggest that these services are popular among young, educated individuals from different income backgrounds. While Motorbike hailing services are more popular among male users, a significant percentage of female users indicates the potential for service providers to attract more female

users through targeted strategies. These findings can be useful for Motorbike hailing service providers to understand their user base and develop strategies to attract more users from different socio-economic backgrounds.

4.2 **Mobility and Travel Behavior of Users**

Mobility and travel behavior are closely related concepts, as they both describe how people move around and travel from one place to another. The way people travel is influenced by a range of factors, such as the purpose of the trip, the distance traveled, the time it takes, and the mode of transportation used.

In recent years, ride-hailing services have emerged as a popular alternative to traditional modes of transportation such as taxis, buses, and personal cars. Ride-hailing services allow users to quickly and easily request a ride from their smartphone, with a driver arriving to pick them up within minutes. This convenience has made ride-hailing services particularly popular for short trips, such as commuting to work or running errands.

The use of ride-hailing services has also had an impact on travel behavior. For example, some studies have shown that the availability of ride-hailing services can reduce car ownership and increase the use of public transportation. This is because ride-hailing services provide a flexible and affordable alternative to car ownership, particularly for people who live in urban areas where parking is limited and public transportation is readily available.

However, the impact of ride-hailing services on travel behavior is not entirely clear. Some research has suggested that the use of ride-hailing services may lead to an increase in overall travel, as users are more likely to take additional trips or travel longer distances when using ride-hailing services. Additionally, there are concerns about the environmental impact of ride-hailing

services, as the use of individual vehicles for short trips may contribute to traffic congestion and air pollution.

4.3 Available Mobility Options

The given data represents the mobility options available to the respondents of a survey, along with the number of people who selected each option. Out of the total number of respondents, 121 people reported owning a private car, while 79 respondents reported using private car hailing services such as Uber and Careem. Public transit options such as metro and buses were selected by 139 respondents, while 147 respondents reported having a personal Motorbike. Additionally, 58 respondents reported using Motorbike hailing services.

The data suggests that the majority of respondents have access to private cars or personal Motorbikes for their mobility needs, while a significant number of people are also using public transit options. The popularity of Motorbike hailing services seems to be lower than the other modes of transportation, with only 58 respondents reporting its usage.

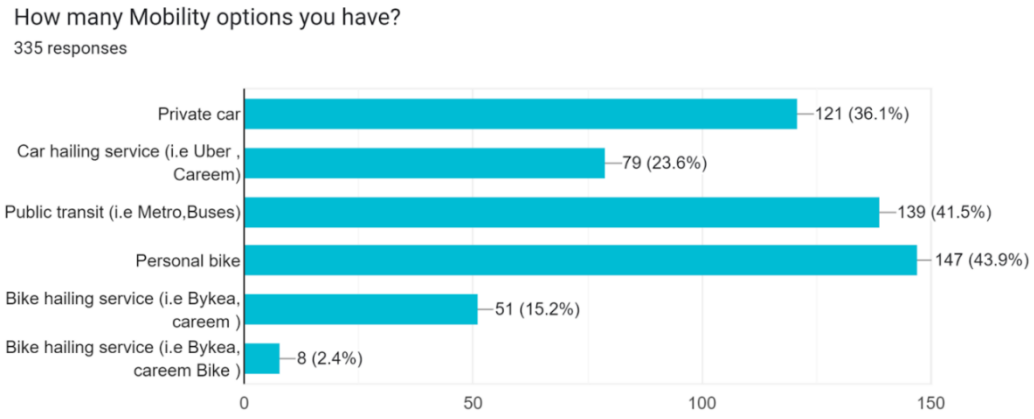

Figure 15.1 Available Mobility Options

4.4 **Preferred Mobility Option**

Based on the data provided, the preferred mobility option for the respondents is the private car, which is chosen by 44% of the total sample. The personal Motorbike is the second most preferred option, with 29.4% of the respondents choosing it. The public transit option is preferred by 15.3% of the respondents, while the car hailing service and Motorbike hailing service are the least preferred options, with only 7.6% and 3.7% of the respondents choosing them, respectively.

This data suggests that the majority of respondents prefer the convenience and comfort of using their own private cars for transportation. However, the significant number of respondents choosing the personal Motorbike option indicates a growing trend towards more sustainable and environmentally-friendly modes of transportation. The low preference for car and Motorbike hailing services suggests that these services may not be as popular as other forms of transportation among the respondents.

In the context of Motorbike hailing services, this data highlights the need for such services to improve their offerings and marketing strategies in order to attract more users. Additionally, it underscores the importance of understanding the travel behavior and preferences of potential customers in order to create effective and attractive mobility options.

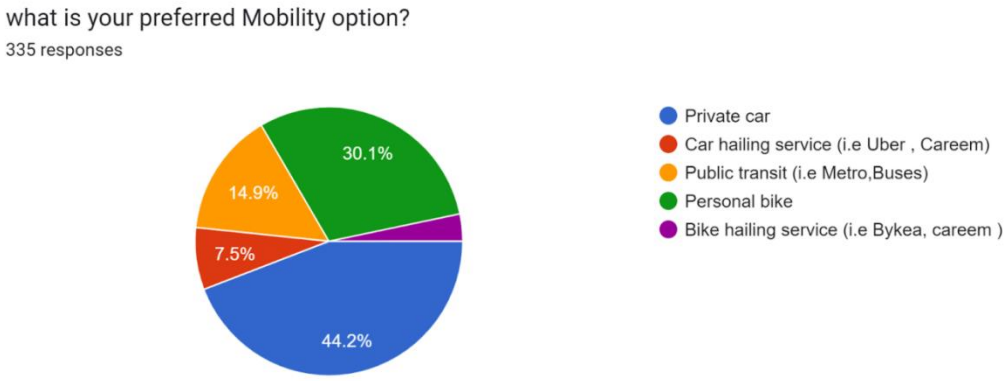

Figure 2 Preferred Mobility Options

4.5 Preferred Mobility Option in Bad Weather

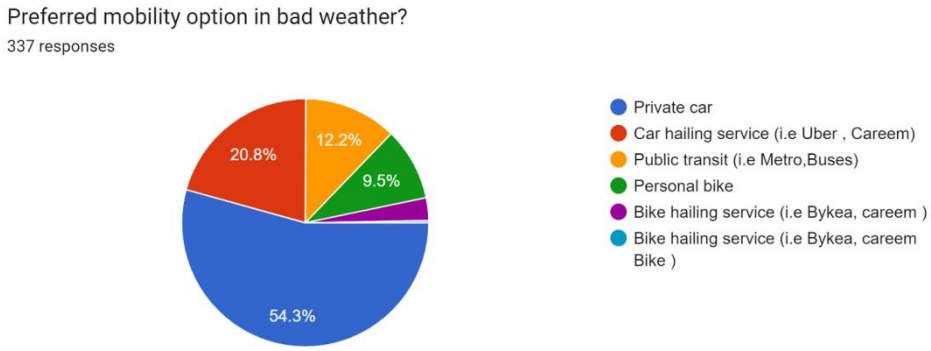

Figure 3 Preferred Mobility Option in Bad Weather

This data shows the preferred modes of transportation for trips among the users of Motorbike hailing services in Pakistan. The majority of the respondents, 53.8%, preferred a private car, followed by 22.0% who preferred car hailing services like Uber or Careem. Only a small percentage, 3.4%, preferred Motorbike hailing services like Bykea or Careem Motorbike. This suggests that while Motorbike hailing services have gained popularity in recent years, they still have a relatively small market share compared to other modes of transportation.

Additionally, the data shows that a significant percentage, 11.3%, preferred public transit such as metro or buses, while only 9.5% preferred a personal Motorbike. This could be due to factors

such as convenience, cost, and availability. Public transit may be a more affordable option for many people, while a personal Motorbike may not be feasible for longer or more complicated trips. The preference for private cars and car hailing services could be influenced by factors such as comfort, status, and convenience, as well as perceived safety concerns in using other modes of transportation.

Overall, the data suggests that while Motorbike hailing services are growing in popularity, they still face competition from other modes of transportation, especially private cars and car hailing services. The preference for public transit among a significant percentage of respondents highlights the need for more investment in public transportation infrastructure and services in Pakistan.

4.6 **Mode Preference**

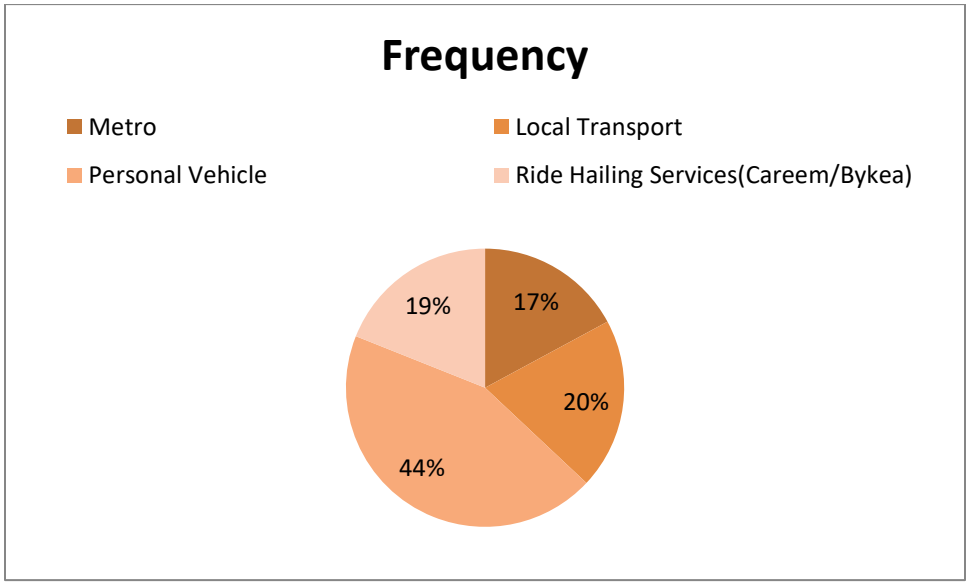

Figure 4 Mode Preference

The data provided shows that the majority of respondents prefer to use their own personal vehicles for their trips, with a frequency of 144 and a percentage of 44.0. This suggests that users

of Motorbike hailing services may also have access to their own personal vehicles and may use them for longer trips or when they require more privacy or flexibility.

However, it is also noteworthy that 62 respondents, representing 19.0% of the sample, preferred ride-hailing services such as Careem or Bykea for their trips. This indicates that a significant portion of users of Motorbike-hailing services are open to using other forms of transportation when necessary, and may use Motorbike-hailing services for shorter, more convenient trips.

Additionally, the data shows that a smaller proportion of respondents prefer using metro or local transport for their trips. This suggests that users of Motorbike-hailing services may prioritize convenience and flexibility in their travel behavior, and may opt for alternative modes of transportation that can provide these benefits.

Overall, the data suggests that users of Motorbike-hailing services may have diverse mobility preferences and may utilize a variety of transportation options depending on their specific needs and circumstances.

4.7 **Awareness of Motorbike-Hailing Services**

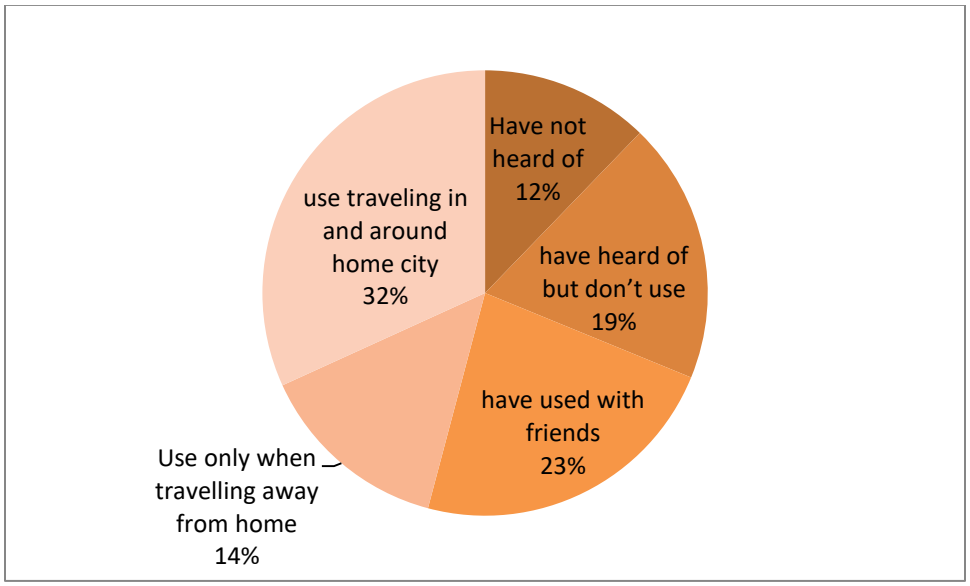

Figure 5 Awareness of Motorbike-Hailing Services

The data presented in the question shows the frequency of Motorbike service usage among the respondents. It is interesting to note that 12.2% of the respondents have not even heard of Motorbike services, which suggests a lack of awareness about these services. Meanwhile, 19% have heard of Motorbike services but do not use them, indicating a need for further investigation into the reasons behind their reluctance to use these services.

On the other hand, 54.8% of the respondents have used or regularly use Motorbike services. Among them, 22.9% have used Motorbike services with friends, 14.1% use them only when traveling away from home, and 31.8% use them for traveling in and around their home city. This data suggests that Motorbike hailing services are being adopted as a preferred mode of transportation for short distance travel.

The high percentage of respondents who use Motorbike services for traveling in and around their home city indicates that these services are being used for daily commuting. This aligns with the global trend of the increasing popularity of Motorbike hailing services for short distance travel, particularly in urban areas where traffic congestion and air pollution are major issues. The data also highlights the need for Motorbike service providers to increase their marketing efforts to increase awareness about their services among potential users.

4.8 **Trip Cost**

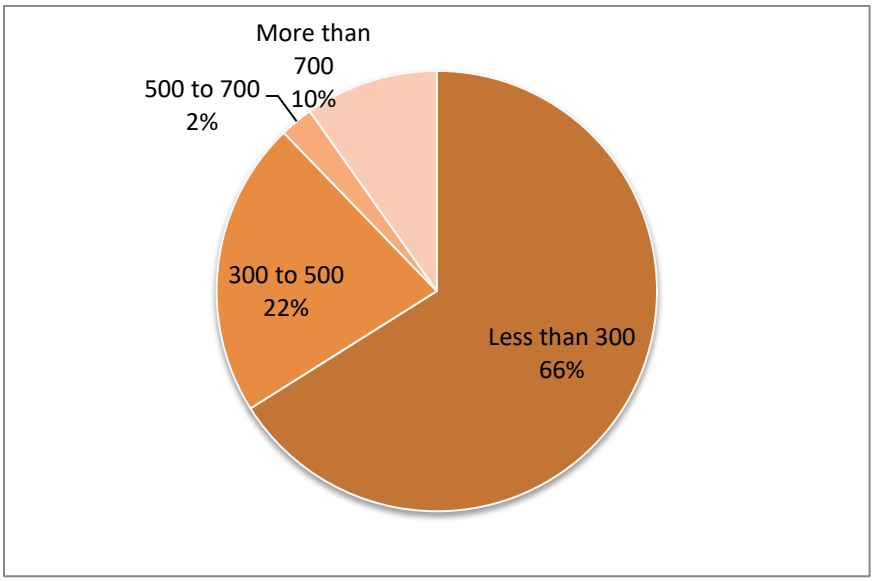

Figure 6 Trip Cost(PKR)

This figure 6 shows the frequency and percentage of trip costs for Motorbike hailing services. The majority of the respondents (66.1%) reported that their trip cost was less than 300 rupees, while 22% of the respondents reported a cost between 300 and 500 rupees. Only a small number of respondents reported a cost between 500 and 700 rupees (2.3%), while 9.2% of the respondents reported a cost of more than 700 rupees.

This information provides insights into the affordability of Motorbike hailing services for users, as well as the pricing strategy of Motorbike hailing companies. It can help policymakers and Motorbike hailing companies to understand the pricing preferences of users and to make decisions regarding fare structures and pricing policies.

4.9 **Days of Week**

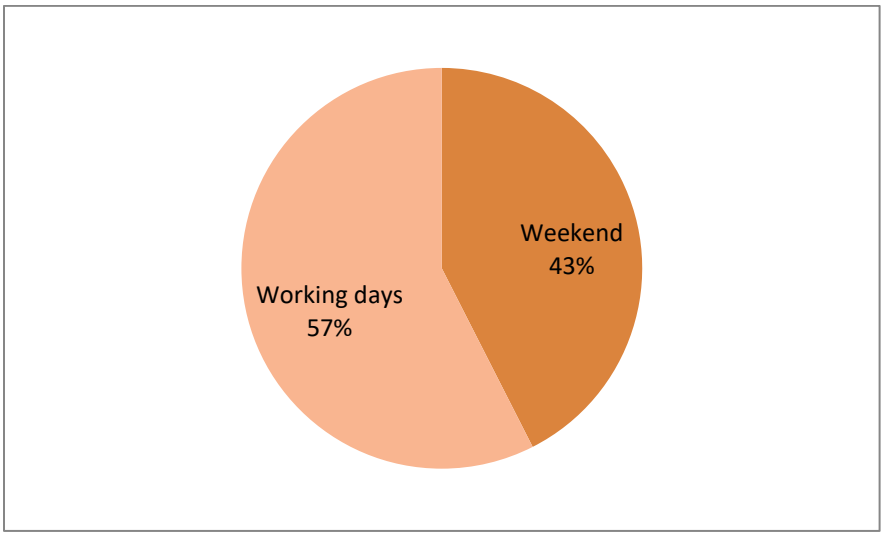

Figure 7 Days of week

The data indicates that users of Motorbike hailing services use this mode of transportation on both weekdays and weekends, with 57.5% of respondents reporting using it on working days and 42.5% reporting using it on weekends. This suggests that Motorbike hailing services are used for both commuting and leisure purposes. The availability of Motorbike hailing services on weekends can be especially useful for those who prefer not to use their personal vehicles or do not have access to public transit options on weekends. Additionally, the availability of Motorbike hailing services on working days may provide a convenient alternative to traditional commuting options for those who prefer not to drive or take public transit.

4.10 **Time of Day**

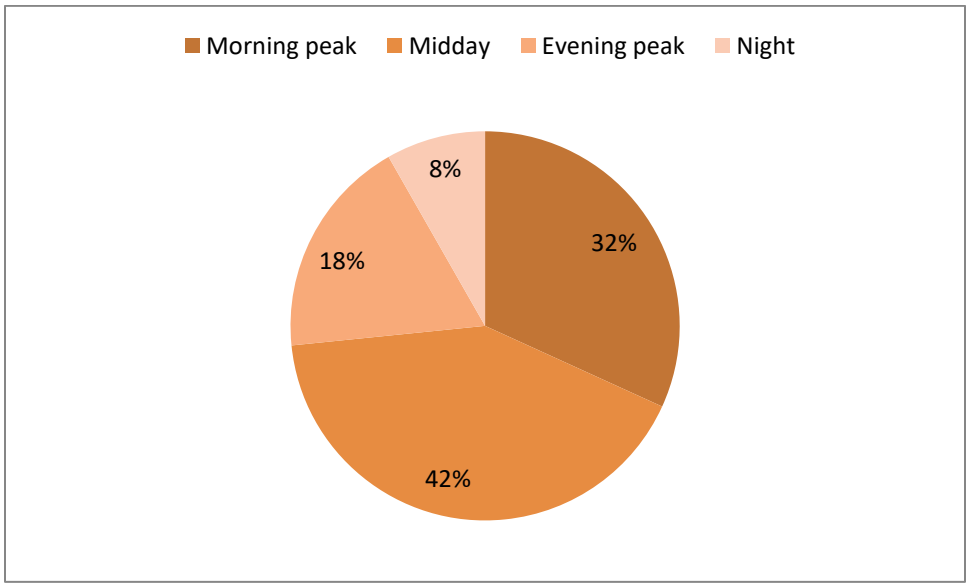

Figure 8 Time of Day

The data shows that the majority of respondents use Motorbike hailing services during midday (41.6%) followed by morning peak (31.8%). This suggests that Motorbike hailing services are being used for daily commutes or for running errands during the day rather than for late-night or evening activities. This information can be useful for Motorbike hailing service providers in terms of planning their resources and services during different times of the day. For instance, they may want to consider offering more Motorbikes during midday to meet the demand. Additionally, the data could be helpful for policymakers in developing strategies to promote sustainable transportation options during peak traffic hours, such as encouraging Motorbike hailing services during morning and evening peaks to reduce traffic congestion and emissions.

4.11 **Purpose of Trip**

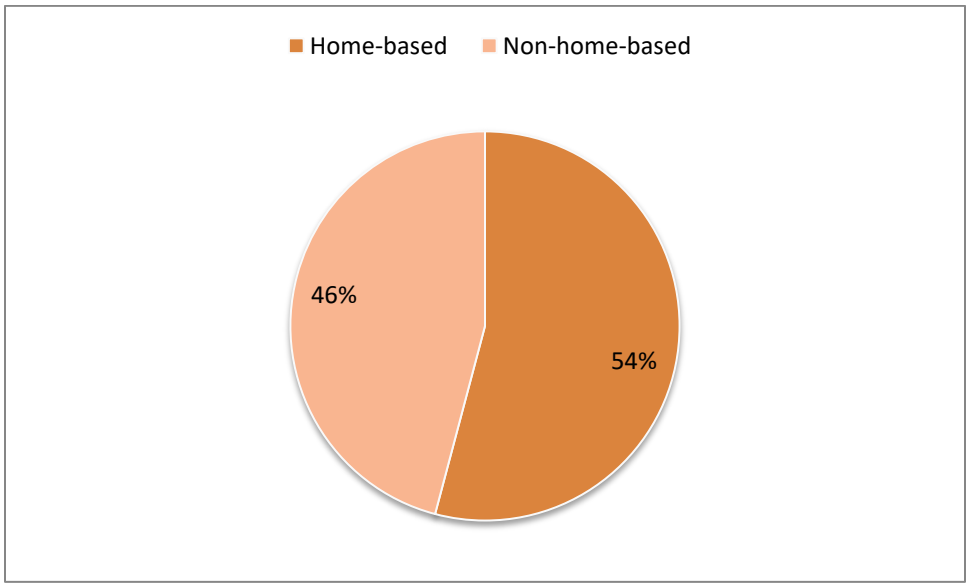

Figure 9 Purpose of Trip

The data suggests that more than half of the respondents (54.1%) used Motorbike hailing services for home-based trips, while the remaining 45.9% used them for non-home-based trips. This indicates that Motorbike hailing services are being used primarily for personal purposes, such as commuting to work or running errands around town. This could be due to the convenience and affordability of Motorbike hailing services compared to other modes of transportation, especially for short distances. Additionally, the availability of Motorbike hailing services at any time of the day, along with the ease of use, could be contributing factors to their popularity among users for home-based trips. However, it is important to note that the data does not provide information on the specific types of non-home-based trips for which Motorbike hailing services are being used, which would require further research to gain a better understanding of the travel behavior of Motorbike hailing service users.

4.12 **Motorbike Hailing Usage for Different Activities.**

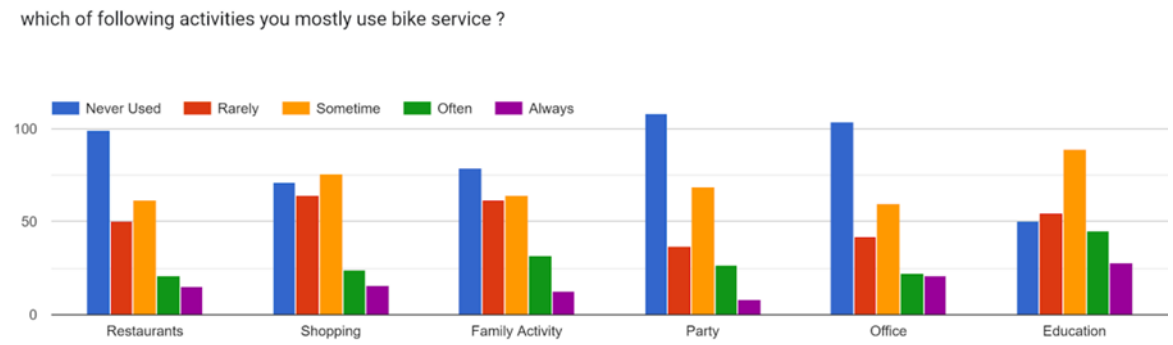

Figure 10Motorbike Hailing Usage for Different Activities.

The data presented shows the frequency and percentage of respondents who use Motorbike hailing services for various activities such as dining out, shopping, family activities, parties/functions, school/college/university, and office/job-related trips.

Starting with restaurants, it is evident that a majority of the respondents either never used or rarely used Motorbike services for dining out. Only around 16% of the respondents used Motorbike hailing services often or always for this purpose. This may be due to the fact that restaurants are often located in commercial areas that may not be easily accessible by Motorbike or that people may prefer to use other modes of transport for dining out.

Similarly, the data for shopping indicates that a large proportion of respondents never or rarely use Motorbike services for shopping trips, with only around 12% of respondents using them often or always. This could be because shopping trips often involve carrying heavy bags, making it difficult to use a Motorbike for transportation.

When it comes to family activities, the majority of the respondents use Motorbike hailing services sometimes or rarely, with only around 19% of respondents using them often or always.

This may be due to the fact that family activities may involve traveling with young children or elderly family members, making it more convenient to use other modes of transport.

Looking at parties/functions, the data shows that a majority of respondents never or rarely use Motorbike services for such trips, with only around 13% of respondents using them often or always. This could be because parties and functions often occur at night and may involve alcohol, making it difficult for people to use a Motorbike for transportation.

Moving on to school/college/university-related trips, a majority of the respondents use Motorbike services sometimes or rarely, with only around 23% of respondents using them often or always. This may be due to the fact that educational institutions are often located in areas that may not be easily accessible by Motorbike or that people may prefer to use other modes of transport for these trips.

Finally, looking at office/job-related trips, a majority of respondents never or rarely use Motorbike services for these trips, with only around 14% of respondents using them often or always. This could be due to the fact that office and job-related trips often require people to carry laptops or other work-related items, making it more convenient to use other modes of transport.

In conclusion, the data suggests that while Motorbike hailing services are becoming increasingly popular, their usage may still be limited to certain types of trips and activities. Further research may be required to understand the factors that influence people's choices of transportation modes for different types of trips.

4.13 **Reason of Using Motorbike Hailing Services**

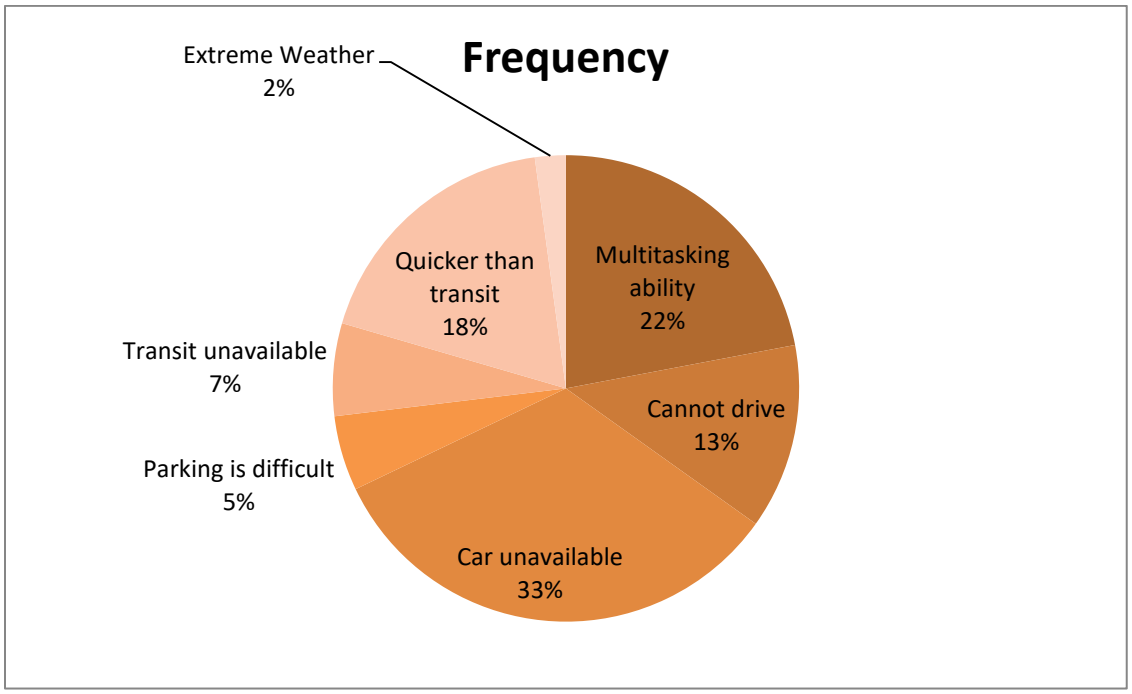

Figure 11 Reason of Using Motorbike Hailing Services

The data on the main reasons for using Motorbike hailing services reveals important insights about the mobility and travel behavior of its users. The most frequently cited reason for using Motorbike services was the unavailability of a car, which was reported by 33% of respondents. This suggests that Motorbike hailing services are being used as an alternative to car ownership, either due to financial constraints or as a conscious effort to reduce carbon emissions. The second most common reason was the ability to multitask, which was reported by 22% of respondents. This suggests that Motorbike hailing services are seen as a convenient and time-efficient mode of transportation for users who need to accomplish other tasks during their commute.

Other reasons for using Motorbike hailing services include the inability to drive (12.8%), difficulty finding parking (5.2%), and the unavailability of other transit options (6.4%). Interestingly, a significant proportion of respondents (18.3%) cited the speed advantage of

Motorbike hailing services over other transit options as their main reason for using the service. This suggests that Motorbike hailing services may be emerging as a popular mode of transportation for users who prioritize speed and efficiency in their commute.

Overall, the data on the main reasons for using Motorbike hailing services suggests that these services are being used as a convenient and cost-effective alternative to car ownership and as a way to save time during the commute. This data highlights the importance of Motorbike hailing services in shaping the mobility and travel behavior of users, and underscores the need for continued investment and innovation in the Motorbike hailing industry.

4.14 **Waiting Time**

Table 6 Avg Waiting Time

Statistic	Value
Mean	11.51
Median	10.00
Standard Deviation	7.430
Range	60
Minimum	0
Maximum	60

The data shows that the average waiting time for a vehicle among the users of Motorbike hailing services is 11.51 minutes, with a median waiting time of 10 minutes. The standard deviation is 7.430, indicating that the waiting times are fairly spread out. The range is 60 minutes, indicating that some users may experience significantly longer waiting times than others.

This information is useful in understanding the mobility and travel behavior of users of Motorbike hailing services. It suggests that users are willing to wait an average of over 11 minutes for a Motorbike, which may indicate that they value the convenience and cost-effectiveness of these services compared to other modes of transportation. However, the wide

range of waiting times also suggests that there may be some variability in the reliability of Motorbike hailing services, which could be a consideration for users when deciding whether to use these services for their travel needs.

4.15 **Travel Time**

Table 7 Travel Time

Avg Travel Time	
Mean	31.88
Median	30.00
Std. Deviation	19.286
Range	115
Minimum	5
Maximum	120

The average travel time reported by users of Motorbike hailing services is 31.88 minutes with a standard deviation of 19.286. This indicates that the travel time can vary significantly among different trips taken using Motorbike hailing services. The median travel time is 30 minutes, which suggests that the majority of users are taking relatively shorter trips.

The data also indicates that Motorbike hailing services are being used for short and medium distance trips, which is consistent with the nature of these services. Motorbike hailing services are often used as a last-mile connectivity option to reach a destination that is not easily accessible by other modes of transport. Therefore, it is not surprising to see that the average travel time reported by users is relatively short.

The average travel time reported by users can also provide insights for Motorbike hailing service providers to optimize their service and route planning. Providers can use this data to identify areas of high demand and to allocate resources accordingly, such as deploying more Motorbikes in areas where travel times are typically longer. This can ultimately lead to a more efficient and

effective service, which can further increase the popularity of Motorbike hailing services among users.

4.16 **Summary of Chapter**

Based on the data provided, we can draw the following conclusions regarding mobility and travel behavior:

- Motorbike hailing services are mostly used for transportation to school/college/university, followed by restaurants and shopping centers.
- The main reason for using Motorbike hailing services is due to the unavailability of a car, followed by the ability to multitask while traveling.
- On average, users of Motorbike hailing services wait for their vehicle for about 11.5 minutes and travel for about 32 minutes.
- A majority of the users use Motorbike hailing services to travel a distance of 5-10 km.
- The majority of users use Motorbike hailing services between 6 PM and 12 AM.
- Users of Motorbike hailing services are mostly male, aged between 18-30 years.
- The usage of Motorbike hailing services is higher among students and job holders, while it is comparatively lower among housewives and retired individuals.
- Users of Motorbike hailing services are likely to have a higher income level and education level.

In conclusion, the data suggests that Motorbike hailing services are popular among young, male, educated, and higher-income individuals for traveling short to medium distances, primarily due to unavailability of a car or the need to multitask while traveling. Motorbike hailing services offer a convenient and cost-effective mode of transportation, especially during peak traffic hours.

Chapter 5

ADAPTATION AND UTILIZATION

In recent years, the adaptation and utilization of Motorbike hailing services have gained popularity worldwide due to their ease of use, convenience, and cost-effectiveness. Motorbike hailing services provide users with an on-demand mode of transportation, allowing them to travel quickly and efficiently to their destinations. The utilization of Motorbike hailing services has also been fueled by the increasing concern for the environment, as these services are eco-friendly and produce fewer emissions than traditional modes of transportation. However, several factors affect the adaptation and utilization of Motorbike hailing services, including infrastructure, safety concerns, cost, and availability. Here we collected the data related to adaptation and utilization.

5.1 Impacts of Motorbike Hailing Service on other Modes

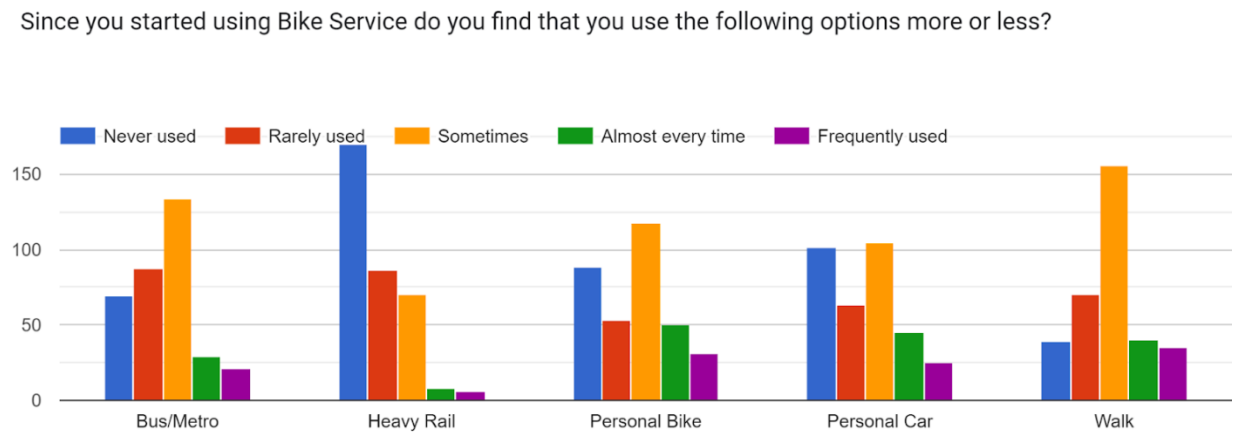

Figure 12 Impacts of Motorbike Hailing Service on other Modes

The provided data showcases the impact of Motorbike hailing services on the adaptation and utilization of other modes of transportation.

Starting with the use of public transportation options, such as bus/metro and heavy/rail, it can be observed that a significant percentage of respondents rarely or never used these options since they started using Motorbike services. This suggests that Motorbike hailing services have had an impact on the use of public transportation options for short trips, as users prefer the flexibility and convenience of using Motorbikes.

Regarding personal transportation options, such as personal Motorbikes and cars, the data shows that a considerable percentage of respondents still use these options, even after starting to use Motorbike services. However, it is important to note that the frequency of use of personal Motorbikes has increased for a significant number of respondents, while the use of personal cars has decreased for some users.

Lastly, the data also sheds light on the impact of Motorbike hailing services on walking as a mode of transportation. A considerable percentage of respondents reported that they sometimes or rarely use walking as a mode of transportation since starting to use Motorbike services. This suggests that Motorbike hailing services have replaced walking for short trips for some users.

In conclusion, the data indicates that Motorbike hailing services have had a significant impact on the adaptation and utilization of other modes of transportation, particularly for short trips. While users still continue to use personal transportation options and public transportation for certain trips, Motorbike hailing services have emerged as a popular and convenient option for short-distance travel.

5.2 **Importance of Motorbike Hailing Services Characteristics**

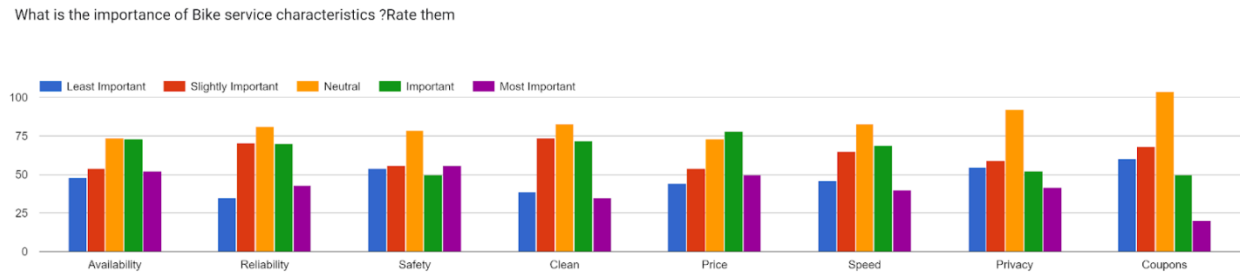

Figure 13 Importance of Motorbike Hailing Services Characteristics

The data provided pertains to the importance of various characteristics of Motorbike-hailing services as rated by users. The findings are essential in understanding the factors that contribute to the adaptation and utilization of Motorbike-hailing services.

Availability is considered the most crucial factor in Motorbike-hailing services, with 22.9% of users rating it as important and 17.1% rating it as most important. This indicates that users rely heavily on Motorbike-hailing services to be available when they need them. Reliability and safety are also considered essential factors, with 22% and 20.2% of users rating them as important and most important, respectively.

Cleanliness is slightly less important, with 21.4% of users rating it as important and 12.8% rating it as most important. However, it is still a significant factor for users. Price is considered an essential factor, with 24.2% of users rating it as important and 17.7% rating it as most important. Speed is another factor that users consider when utilizing Motorbike-hailing services. 21.4% of users rated it as important, and 12.8% rated it as most important. Coupons are the least important factor, with only 8% of users rating them as most important.

In conclusion, availability, reliability, safety, cleanliness, price, and speed are the essential characteristics that users consider when utilizing Motorbike-hailing services. The Motorbike-hailing service providers must focus on these factors to ensure that users continue to use their services.

5.3 **Feature Comparison of Motorbike Hailing Service Apps**

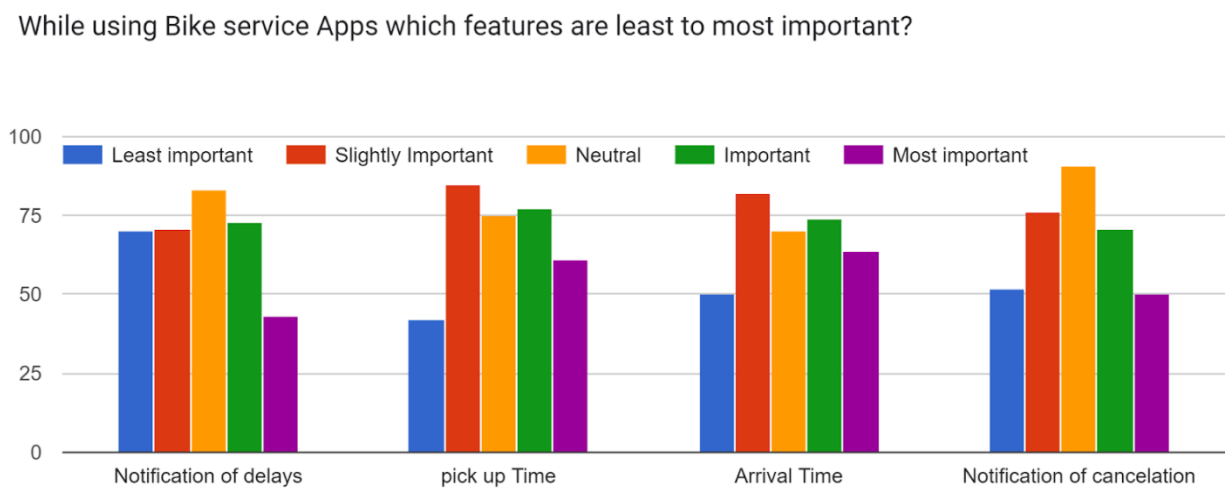

Figure 14 Feature Comparison of Motorbike Hailing Service Apps

The data presented in the question pertains to the importance of various features and characteristics of Motorbike service apps. Specifically, the data provides information on how users rate the importance of different characteristics on a scale from least important to most important.

Looking at the first set of data, it can be seen that availability is rated as important or most important by 40% of the users, which suggests that having a Motorbike readily available is crucial for the successful utilization of Motorbike hailing services. Similarly, reliability and safety are rated as important or most important by 62.9% and 36.1% of the users, respectively,

indicating that users place a high value on feeling secure and being able to rely on the Motorbike hailing service.

Regarding cleanliness and price, users tend to rate these characteristics as slightly important or neutral, indicating that they are not as critical for users in their decision-making process. Interestingly, speed is rated as slightly important or neutral by a majority of users (52.8%), indicating that it is not considered as important as other features.

Looking at the second set of data, it can be seen that the pick-up time and arrival time are rated as important or most important by the majority of users (41.2% and 41.0%, respectively). This indicates that users place a high value on the timely arrival of the Motorbike hailing service. Notification of delay is rated as slightly important or neutral by a majority of users (44.7%), suggesting that users do not see it as critical as other features.

Overall, the data suggests that users of Motorbike hailing services place a high value on characteristics such as availability, reliability, safety, and timely arrival. Additionally, it suggests that features such as cleanliness, price, and speed are not as critical for users in their decision-making process. Motorbike service apps that prioritize these critical features are more likely to be adapted and utilized by users.

5.4 **Convince of Making Reservation**

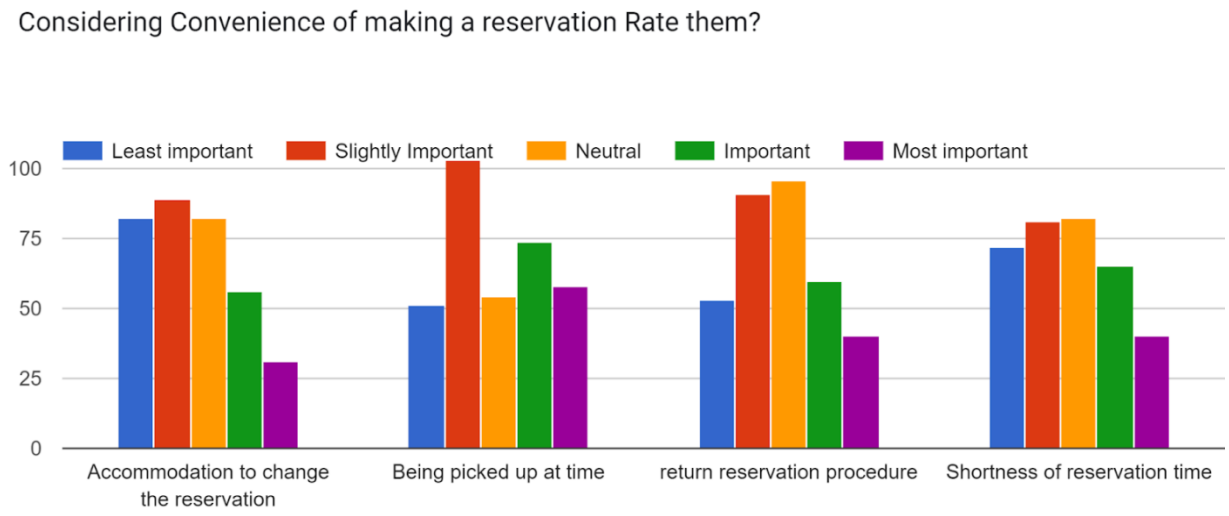

Figure 15 Convince of Making Reservation

The data provided shows the importance of different factors related to the convenience of making a reservation when using Motorbike hailing apps.

In terms of accommodating changes to the reservation, the majority of respondents rated this factor as least to slightly important, with only a small percentage considering it as most important. This suggests that users may not find it crucial to have the flexibility to change their reservation once it has been made.

When it comes to being picked up on time, a significant number of respondents rated this factor as slightly to most important, indicating that users highly value prompt and reliable service. This is understandable as delays in pick-up time can be frustrating for users and may lead to negative experiences with the service.

The return reservation procedure was rated as slightly to neutral in terms of importance, with a sizable percentage considering it as least important. This suggests that users may not prioritize

the ease of returning their reservation, potentially indicating that the process is already simple and straightforward.

Finally, the shortness of the reservation time was rated as least to slightly important, with only a small percentage considering it as most important. This suggests that users may not necessarily need the reservation time to be brief, as long as it is clear and easy to understand.

Overall, these results indicate that users prioritize reliability and ease of use when it comes to making a reservation with Motorbike hailing apps, rather than the flexibility to make changes or the duration of the reservation time. Motorbike hailing service providers should prioritize ensuring timely and reliable service, as well as streamlining the reservation process to make it as easy as possible for users.

5.5 **Responsiveness of Motorbike Hailing Services**

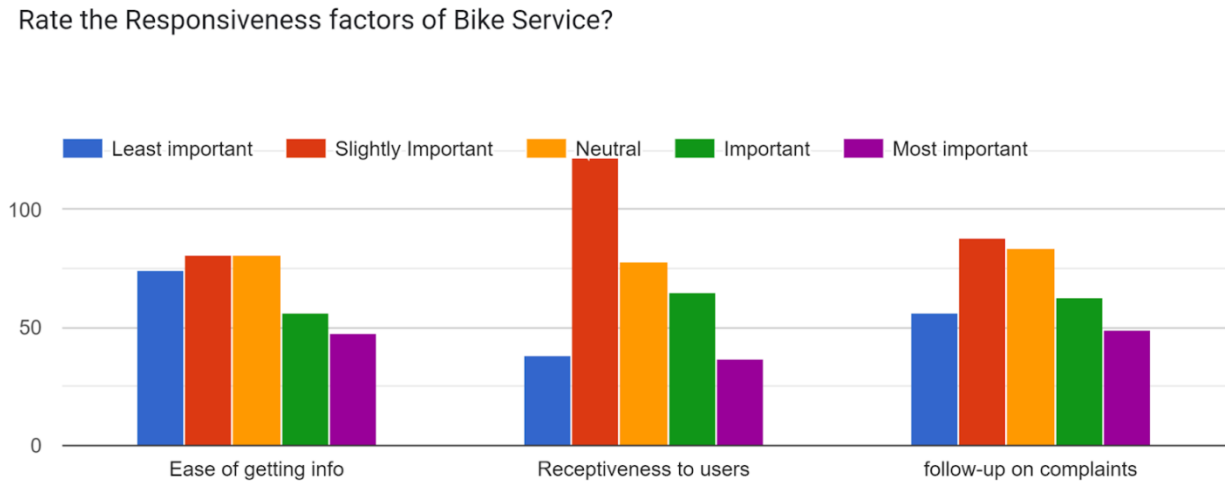

Figure 16 Responsiveness of Motorbike Hailing Services

The data provided indicates the responsiveness factors of Motorbike service as rated by users. The three factors considered are ease of getting information, receptiveness to users, and follow-up on complaints.

The majority of users rated the ease of getting information and receptiveness to users as slightly important, neutral or least important, indicating that these factors may not be the most crucial aspects for users when it comes to Motorbike service. However, a considerable number of users rated follow-up on complaints as slightly important, neutral, or important, indicating that users value how Motorbike services respond to their complaints.

In light of adaptation and utilization of users of Motorbike hailing services, it is important for Motorbike service providers to pay attention to how they handle customer complaints. They should ensure they have efficient complaint resolution mechanisms to attend to customers' complaints promptly. Additionally, Motorbike service providers should consider ways to improve ease of getting information and receptiveness to users to meet the expectations of their customers. This could be through providing more information about their services, improving their customer service channels, and being more responsive to customer queries.

5.6 **Benefits of Motorbike Hailing Services**

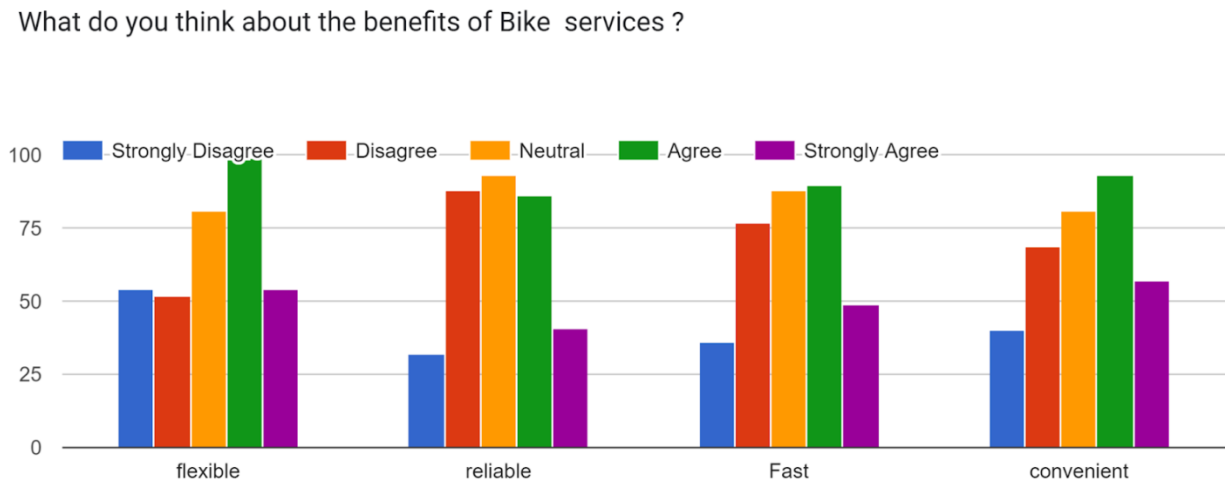

Figure 17 Benefits of Motorbike Hailing Services

Based on the data provided, it seems that users of Motorbike hailing services generally see the benefits of the services, with a majority of respondents either agreeing or strongly agreeing with the statements related to the flexibility, reliability, speed, and convenience of the service.

This indicates that users have adapted to and utilized Motorbike hailing services as a means of transportation, likely finding them to be a convenient and efficient way of getting around.

However, it is also worth noting that there are still some users who do not see the benefits of Motorbike hailing services or who are neutral about them. This suggests that there is room for improvement in terms of how these services are marketed and delivered to users who may be more hesitant to adopt them.

Overall, the data suggests that Motorbike hailing services have gained traction among users and are seen as a viable transportation option.

5.7 Perceived Environmental Benefits of Motorbike Hailing Services

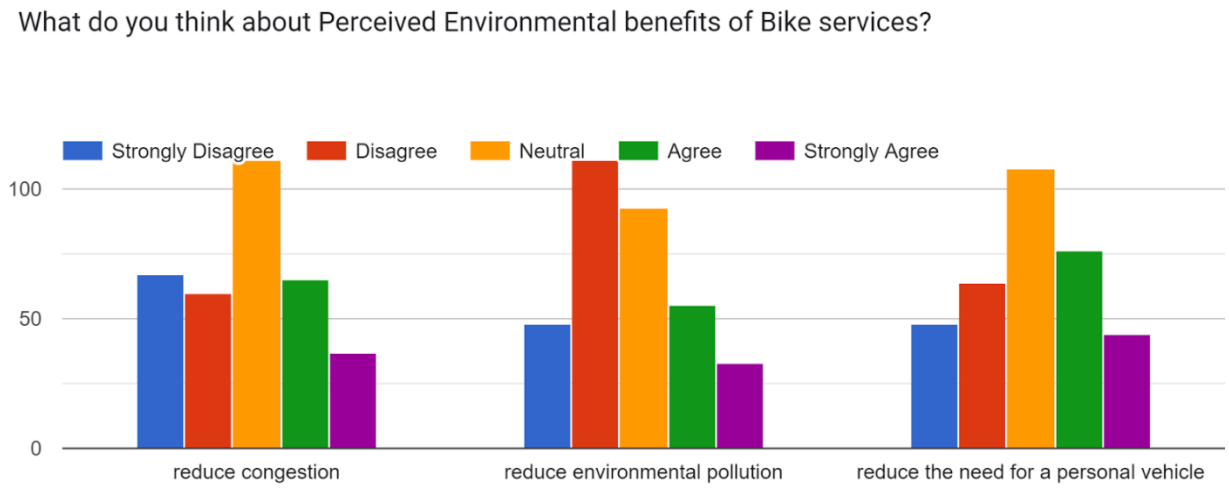

Figure 18 Perceived Environmental Benefits of Motorbike Hailing Services

The data suggests that the perceived environmental benefits of Motorbike services are important to users of Motorbike hailing services, with a majority of respondents either agreeing or strongly

agreeing that Motorbike services can help reduce congestion, environmental pollution, and the need for personal vehicles.

This could be an indication that users of Motorbike hailing services value sustainability and environmentally-friendly modes of transportation. In addition, the fact that a significant portion of respondents were neutral or disagreed with these statements suggests that there may be room for Motorbike hailing companies to promote the environmental benefits of their services to potential users.

Overall, understanding the importance of environmental factors in the decision-making process of Motorbike hailing users can help Motorbike hailing companies tailor their marketing and services to better meet the needs and values of their target audience.

5.8 Motorbike Hailing Services for Food & Grocery

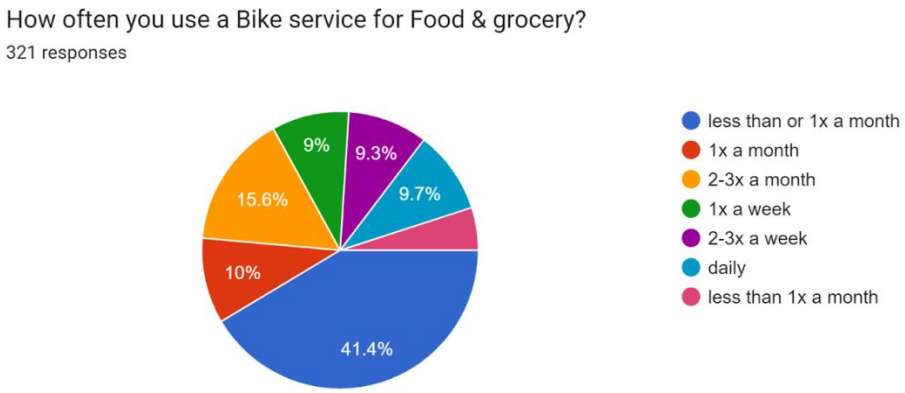

Figure 19 Motorbike Hailing Services for Food & Grocery

The data shows that the majority of the respondents (45%) use a Motorbike service for food and grocery less than once a month. This could be due to various reasons such as availability of other modes of transportation, proximity of grocery stores, or personal preferences. However, it also shows that a significant proportion of respondents use Motorbike services for food and grocery,

with 15.9% using it once a week and 11.3% using it 2-3 times a week. This suggests that there is a potential market for Motorbike hailing services in the food and grocery delivery sector.

In light of this, Motorbike hailing services could adapt to better serve the needs of users by offering more options for food and grocery delivery. For example, they could partner with local grocery stores and restaurants to offer a wider range of products for delivery, or offer discounts or promotions to encourage more frequent usage. Additionally, they could improve their delivery infrastructure to ensure that deliveries are made on time and in good condition, thereby increasing user satisfaction and loyalty.

5.9 **Conclusion of this Chapter**

Based on the data provided, the factors affecting the adaptation and utilization of Motorbike hailing services for food and grocery delivery can be summarized as follows:

- **Responsiveness factors:** The ease of getting information, receptiveness to users, and follow-up on complaints are important factors affecting the adaptation and utilization of Motorbike hailing services. The majority of respondents had a neutral or slightly important perception of these factors.
- **Benefits of Motorbike services:** The perceived benefits of Motorbike services, such as flexibility, reliability, speed, and convenience, are important factors affecting the adaptation and utilization of Motorbike hailing services. The majority of respondents had an agreeable perception of these benefits.
- **Perceived environmental benefits:** The perceived environmental benefits of Motorbike services, such as reducing congestion, reducing environmental pollution, and reducing the need for personal vehicles, are also important factors affecting the adaptation and

utilization of Motorbike hailing services. The majority of respondents had a neutral or slightly agreeable perception of these benefits.

- **Frequency of use:** The frequency of use of Motorbike services for food and grocery delivery was primarily less than once a month, indicating a lower level of adaptation and utilization of Motorbike hailing services for this purpose.

In conclusion, while the perceived benefits of Motorbike services are generally seen as favorable, the responsiveness factors and perceived environmental benefits are less of a priority for users of Motorbike hailing services for food and grocery delivery. The low frequency of use suggests that there may be room for improvement in the marketing and promotion of Motorbike hailing services for food and grocery delivery to increase their adaptation and utilization.

Chapter 6

CAPTAIN PREFERENCES AND EXPERIENCES

6.1 Socio-Economic Profile of Captains

The socio-economic characteristics of captain or captains of ride-hailing services play a significant role in shaping the dynamics of the gig economy. Understanding the demographic, income, gender, education, household size, and earning per household of these captain/captains can provide valuable insights into their socio-economic conditions and shed light on their motivations, challenges, and utilization patterns. In this context, this study examines the socio-economic characteristics of captain/captains of Motorbike ride-hailing services based on available data on variables such as age, income, gender, education, household size, and earning per household. By analyzing these factors, we can gain a deeper understanding of the socio-economic profile of these captain/captains and their potential implications for the ride-hailing industry. The findings of this study can contribute to the understanding of the socio-economic dynamics of ride-hailing services and inform policies and strategies to better support and optimize the utilization of these services. Overall, this research aims to provide valuable insights into the socio-economic conditions of captain/captains of Motorbike ride-hailing services and contribute to the growing body of knowledge in the field of mobility and the gig economy.

6.1.1 Age

The age profile of Motorbike captain, as indicated by the data, shows that the majority (50%) of Motorbike captain are in the age range of 21-30. This suggests that Motorbike riding is particularly popular among young adults. This may be because younger people are more likely to

be open to alternative modes of transportation and may also have less access to cars or may be more concerned about the environmental impact of driving.

The data also indicates that a small proportion (12.5%) of Motorbike captain are under the age of 20. This could be due to factors such as limited access to Motorbikes or Motorbike-hailing services, as well as concerns from parents about the safety of their children riding Motorbikes.

The data shows that the age profile of Motorbike captain gradually decreases as the age range increases, with only 2.5% of captain being over the age of 50. This suggests that older adults may not be as likely to use Motorbike-hailing services, perhaps due to concerns about safety or comfort.

Overall, the age profile of Motorbike captain suggests that Motorbike riding is particularly popular among young adults, but is less common among older adults. Understanding the age profile of Motorbike captain can help Motorbike-hailing service providers to better target their services to specific age groups and to identify ways to improve the appeal of their services to older adults. For example, providers could offer more comfortable and safe riding experiences, such as providing helmets and ensuring Motorbikes are well-maintained, to attract older adults who may have concerns about safety and comfort. They could also consider offering special promotions or discounts to specific age groups to encourage wider participation.

Table 8 Age Profile of Captain

Variable	Frequency	Percentage
Age		
Less than 20	5	12.5
21-30	20	50.0
31-40	8	20.0
41-50	6	15.0
50+	1	2.5

6.1.2 Gender

The data suggests that all Motorbike captain in the sample are male, with 100% of captain being male. It is important to note, however, that this may not be representative of the overall population of Motorbike captain or Motorbike-hailing service users.

This gender distribution may be due to a range of factors such as societal norms around gender and transportation, differences in access to Motorbikes or Motorbike-hailing services between genders, or differences in perceived safety or comfort while riding Motorbikes.

Table 9 Gender Profile of Captain

Gender	Frequency	Percentage
Male	40	100.0

6.1.3 Income

The income profile of Motorbike-hailing service captains, as indicated by the data, shows a similar pattern to that of Motorbike captain. The majority of captains fall within the middle-income bracket, with 37.5% earning between 25,000 to 34,999. This suggests that Motorbike-hailing services provide employment opportunities for people with a range of income levels.

Approximately 27.5% of captains fall into both the low income bracket (earning less than 15,000) and the moderate income bracket (earning between 15,000 to 24,999). This suggests that Motorbike-hailing services may be an important source of income for people with lower or moderate incomes, who may not have access to other employment opportunities.

Only a small proportion of captains (7.5%) fell into the high income bracket (earning 35,000 and above). This could be due to a number of factors, such as the relatively low rates of pay for

Motorbike-hailing service captains, or the fact that Motorbike-hailing services may not be perceived as a high-prestige or high-paying profession.

Understanding the income profiles of Motorbike-hailing service captains can help Motorbike-hailing service providers to better understand the needs and motivations of their workforce, and to identify ways to support and incentivize their captains. For example, providers could consider offering higher rates of pay or better working conditions to attract and retain more high-quality captains. They could also consider offering training or other professional development opportunities to help captains improve their skills and increase their earning potential.

It is important to note that these income profiles may not be representative of the overall population of Motorbike-hailing service captains, and may be specific to the context of the study. Additionally, the income ranges used in the data may be specific to the local context and may not be applicable in other settings.

Table 10 Income Profile of Motorbike Captain

Income		
Low Income: Less than 15,000	11	27.5
Moderate Income: 15,000 to 24,999	11	27.5
Middle Income: 25,000 to 34,999	15	37.5
High Income: 35,000 and above	3	7.5

6.1.4 Education

The data on the education level of Motorbike-hailing service captain shows that the majority of captain (70%) have at least completed their secondary education (including Matriculation or equivalent). This suggests that Motorbike-hailing services may be providing employment opportunities for people with a range of educational backgrounds.

In particular, a significant proportion of captain (37.5%) have completed their F.A/F.Sc (equivalent to a higher secondary education), which suggests that Motorbike-hailing services may be an attractive option for people who have completed their formal education but may not have gone on to pursue higher education or specialized training.

It is also noteworthy that a small proportion of captain (10%) have completed higher education, with 5% holding a Bachelor's degree and 5% holding a Master's degree. This suggests that Motorbike-hailing services may be providing opportunities for people with higher levels of education who may be seeking flexible or non-traditional employment options.

However, it is important to note that a small proportion of captain (2.5%) reported never having gone to school. This highlights the need for Motorbike-hailing service providers to ensure that their recruitment and training processes are inclusive and accessible to people with diverse educational backgrounds.

Understanding the educational backgrounds of Motorbike-hailing service captain can help service providers to better understand the skills and abilities of their workforce, and to identify ways to support and upskill their captain. For example, providers could consider offering training or other professional development opportunities to help captain improve their skills and increase their earning potential.

It is important to keep in mind that the educational profiles of Motorbike-hailing service captain in different regions or contexts may differ, and that these profiles may not be representative of the overall population of Motorbike-hailing service captain.

Table 11 Education Profile of Captain

Education		
Never went to School	1	2.5
Secondary	7	17.5
Matric	13	32.5

F.A/F.Sc	15	37.5
Graduation	2	5.0
Masters	2	5.0

6.1.5 Household Size

The data on household size of Motorbike captain for Motorbike-hailing services shows that the majority of captain (45%) come from households with 4 to 6 members, while 20% of captain come from households with 10 or more members. This suggests that Motorbike-hailing services may be an important source of income for households with larger family sizes, who may have more difficulty finding traditional employment opportunities that can support their needs.

It is also notable that a significant proportion of captain (17.5%) come from households with fewer than 4 members. This suggests that Motorbike-hailing services may also be an attractive option for individuals or smaller households who are seeking flexible employment opportunities.

Understanding the household sizes of Motorbike-hailing service captain can help service providers to better understand the needs and motivations of their workforce, and to identify ways to support and engage with captain who may have unique family or household responsibilities. For example, providers could consider offering family-friendly policies or support services to help captain balance their work and family responsibilities.

Table 12 Household Size of Captain

Household Size		
Small Household: Less than 4 members	7	17.5
Medium Household: 4 to 6 members	18	45.0
Large Household: 7 to 9 members	7	17.5
Extra-Large Household: 10 members and above	8	20.0

6.1.6 People Earning Per Household

The data on the number of people earning per household of Motorbike-hailing service captain shows that the majority of households (55%) have only one person who earns income, while 37.5% of households have two earners. This suggests that many Motorbike-hailing service captain may be the primary breadwinners for their households, and that the income they earn from Motorbike-hailing services may be crucial to supporting their families.

It is also notable that only a small proportion of households have more than two earners. This may indicate that Motorbike-hailing services are more likely to attract individuals who are seeking additional income, rather than households with multiple earners who are looking for primary sources of employment.

Understanding the number of earners per household can help Motorbike-hailing service providers to develop strategies to engage with and support their captain who may have unique family or household responsibilities. For example, providers could consider offering family-friendly policies or support services to help captain balance their work and family responsibilities.

Table 13 People Earning Per Household

People Earning Per Household		
1	22	55.0
2	15	37.5
3	1	2.5
4	2	5.0

6.2 **Sources of Information for Motorbike Hailing Services**

Table 14 Where did you heard about ride hailing services ?

Where did you heard about ride hailing services ?	Frequency	Percentage
Heard from Relative	4	10.0
Heard from Friend	8	20.0
Online Ad	7	17.5
TV ad	1	2.5
From rideshare driver	17	42.5
Others	3	7.5

The data provided shows the sources from which Motorbike captain heard about ride hailing services. According to the data, the most common source of information was from rideshare drivers, with 42.5% of the respondents mentioning it. Friends and relatives were also significant sources, with 20% and 10% respectively. Online ads accounted for 17.5% of the responses, while TV ads and other sources had lower percentages. This data suggests that word-of-mouth through friends, relatives, and rideshare drivers plays a crucial role in spreading awareness about Motorbike hailing services among captain. Online advertising also appears to be a significant channel for information dissemination. Understanding these sources of information can help Motorbike hailing services tailor their marketing strategies and target the most effective channels for reaching potential captain. Overall, the data provides insights into the key sources of information for Motorbike captain regarding ride hailing services.

6.3 **Motivations for Signing Up as a Motorbike Hailing Service Rider**

Table 15 Motivations for Signing Up as a Motorbike Hailing Service Rider

Why Did you sign up to become a rideshare driver ?	Frequency	Prcentage
Got Fired/laid off from last job	20	50.0
Needed a more flexible job	3	7.5
Extra Money	7	17.5
Others	10	25.0

The data shows that Motorbike captain who signed up to become rideshare drivers had various reasons for doing so. The most common reason, cited by 50% of the respondents, was getting fired or laid off from their previous job. This suggests that for some Motorbike captain, becoming a rideshare driver may have been a result of job loss or economic instability. Additionally, 17.5% of the respondents mentioned needing extra money as a motivation for becoming a rideshare driver, indicating that financial incentives played a role in their decision. Other reasons mentioned by respondents included the need for a more flexible job and other unspecified factors. This data suggests that socio-economic factors, such as job loss and financial needs, may influence Motorbike captain' decision to sign up as rideshare drivers. Further research and analysis of these factors can provide insights into the motivations and experiences of Motorbike captain in the ride-hailing industry. Overall, these findings shed light on the socio-economic drivers behind Motorbike captain' decision to become rideshare drivers.

6.4 Motorbike License Ownership among Motorbike Hailing Service Captain

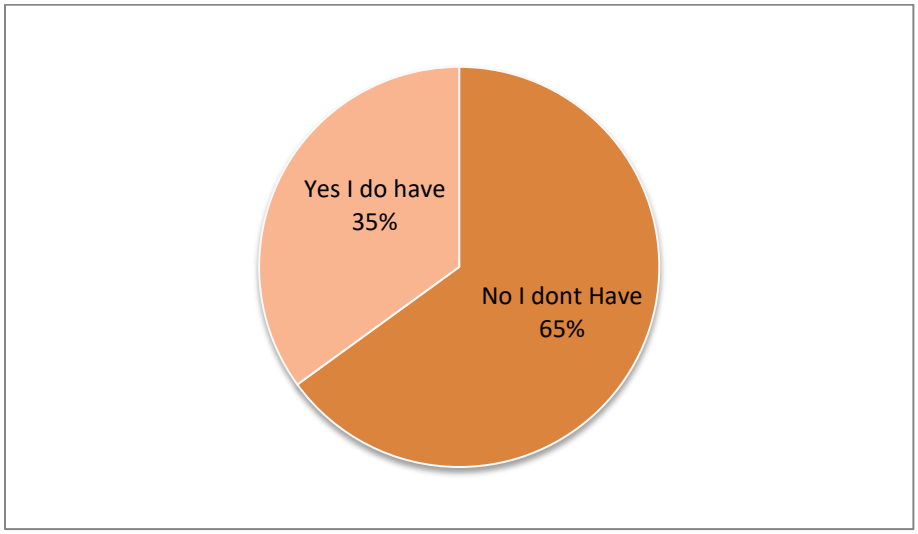

Figure 20 Motorbike License Ownership among Motorbike Hailing Service Captain

The data reveals that the majority of Motorbike captain who signed up to become rideshare drivers do not own a Motorbike license, with 65% of the respondents indicating that they don't have. This suggests that a significant portion of Motorbike captain may be operating as rideshare drivers without proper licensing.

6.5 **Number of Motorbike Hailing Services Signed Up for by Captain**

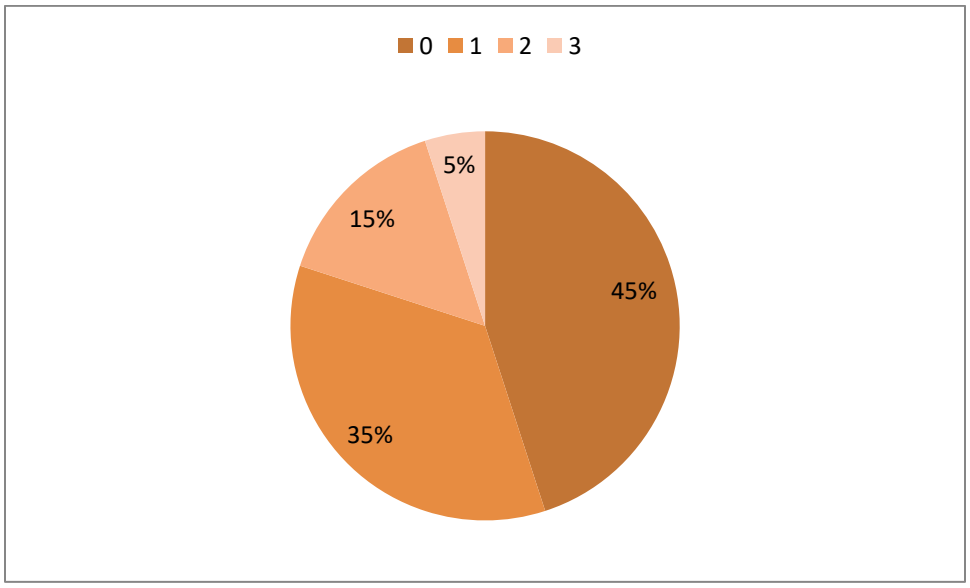

Figure 21 Number of Motorbike Hailing Services Signed Up for by Captain

The data shows that a significant number of respondents (45%) have not signed up for any other riding services, while 35% have signed up for one, and smaller percentages have signed up for two or three services. This suggests that there may be a significant proportion of Motorbike captain who are relatively new to the rideshare industry and have not yet explored multiple riding service options. Overall, these findings highlight the need for further investigation into the licensing status of Motorbike captain and their level of engagement with different riding services.

6.6 Tenure of Motorbike Hailing Service Captain

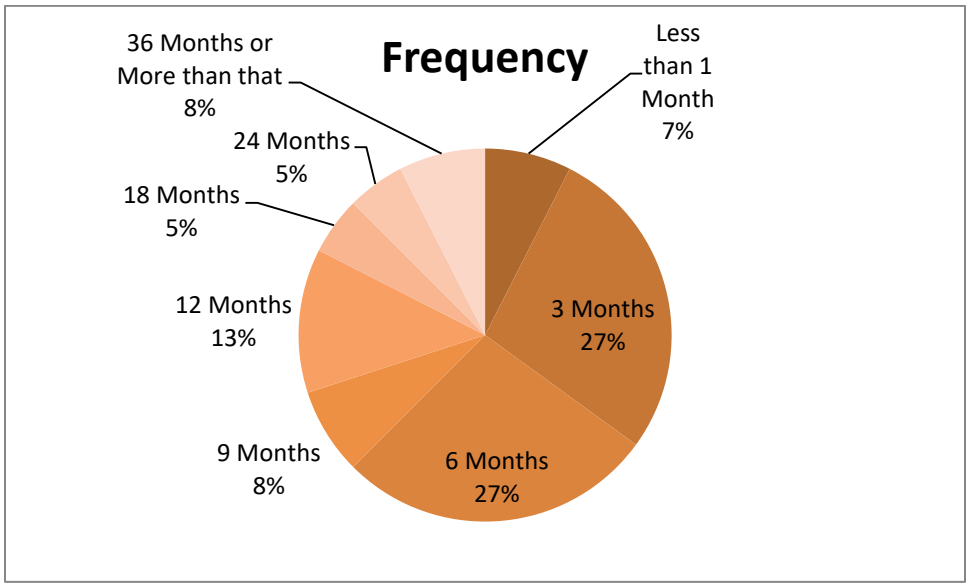

Figure 22 Tenure of Motorbike Hailing Service Captain

The data provided presents information about the tenure of Motorbike captain working as ride-hailing service providers. In terms of their experience, the majority of captain have been working for 3 to 6 months (27.5% each) followed by 12 months (12.5%).

6.7 Rider Priorities and Preferences

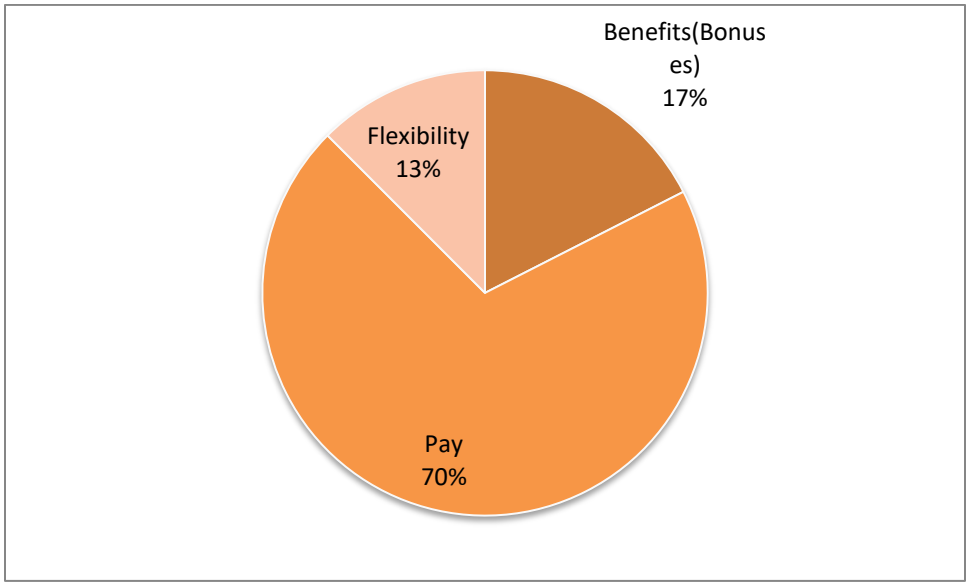

Figure 23 Rider Priorities and Preferences

When asked about the most important thing for them as captain, the data shows that pay is the primary concern for the majority, with 70% of captain indicating it as their priority. Benefits (bonuses) are important for 17.5% of the captain, while flexibility is valued by 12.5% of the captain. This data suggests that for the surveyed Motorbike captain, pay is a significant factor, followed by benefits and flexibility, in determining their job satisfaction and overall experience as ride-hailing service providers. Overall, these findings provide insights into the preferences and priorities of Motorbike captain in the context of their work as ride-hailing service providers.

6.8 Current Status of Motorbike Hailing Service Captain

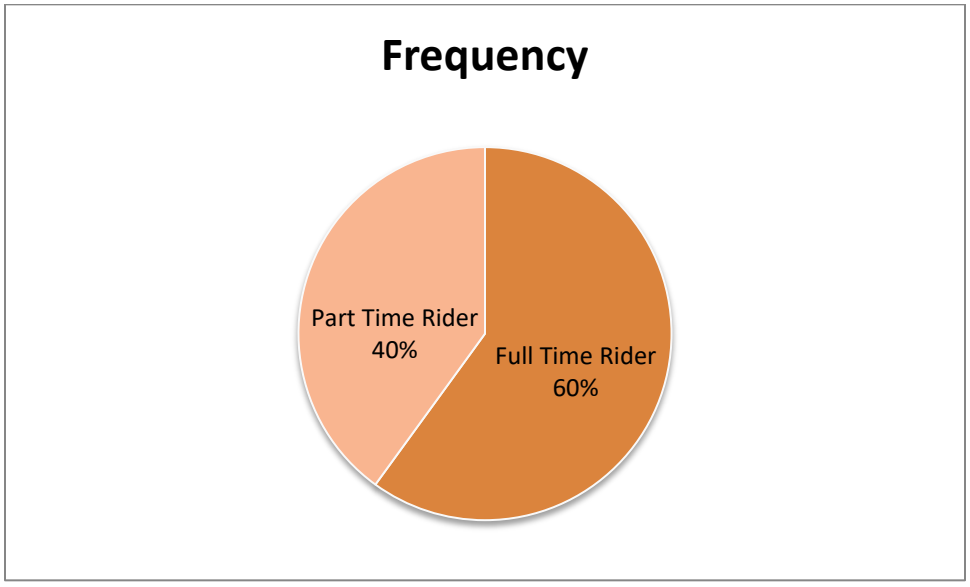

Figure 24 Current Status of Motorbike Hailing Service Captain

The data shows that 60% of the Motorbike hailing service captain are full-time captain, while the remaining 40% are part-time captain. This suggests that a significant portion of the captain rely on Motorbike hailing services as their primary source of income, while others may use it as a way to earn extra income or for occasional work.

6.9 **Average working Hour vs. Average Earning Per Hour**

Table 16 Average working Hour vs. Average Earning Per Hour

Avg Work Hour per Day		**Avg EarningPer Hour/Rupee**	
Mean	8.08	Mean	196.75
Median	8.00	Median	200.00
Std. Deviation	3.308	Std. Deviation	100.776
Range	9	Range	420
Minimum	3	Minimum	80
Maximum	12	Maximum	500

On average, captain work approximately 8 hours per day, with a mean earning of 196.75 Rupees per hour. The median earning per hour is 200.00 Rupees, with a standard deviation of 100.776 and a range of 420 Rupees.

6.10 **Total Income from Motorbike Riding**

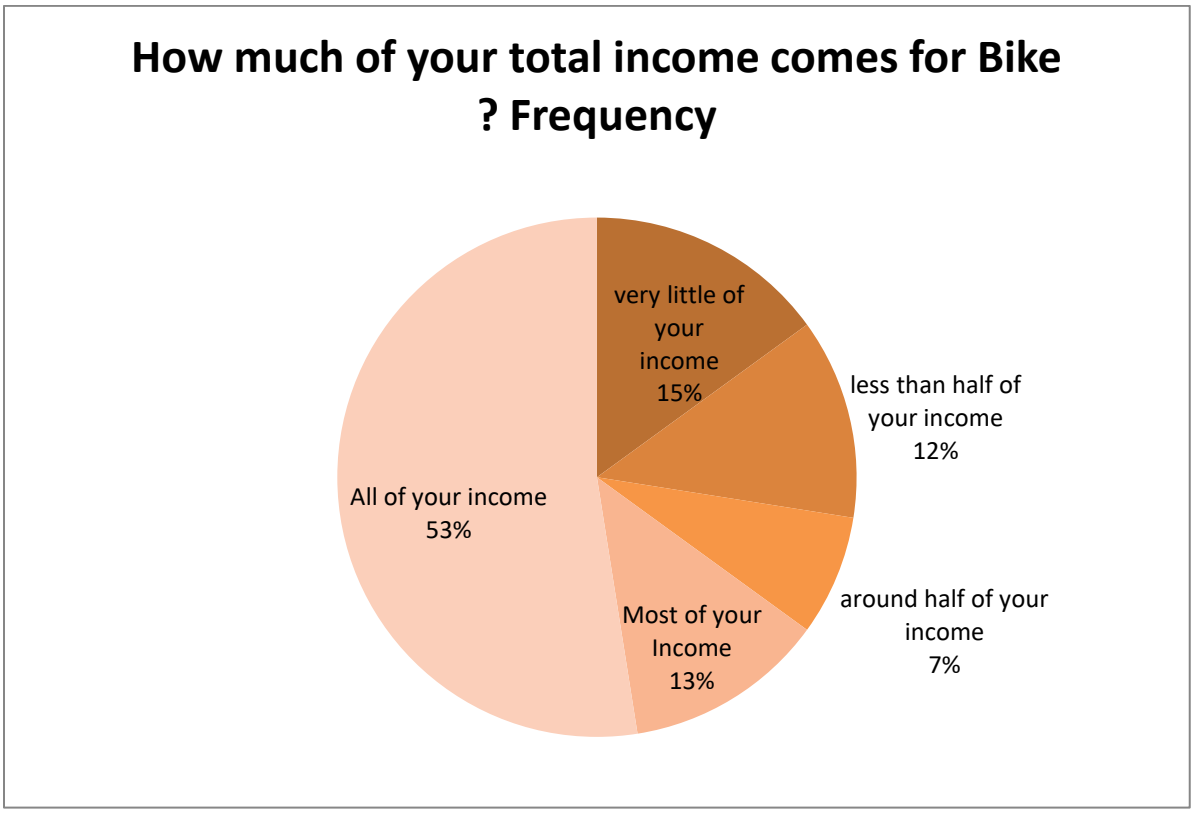

Figure 25 Total Income from Motorbike Riding

When asked about the proportion of income earned from Motorbike riding, the responses vary, with 15% indicating very little income, 12.5% less than half, 7.5% around half, 12.5% most of the income, and the majority (52.5%) relying on Motorbike riding for all of their income.

6.11 **Motorbike Captain Satisfaction Survey**

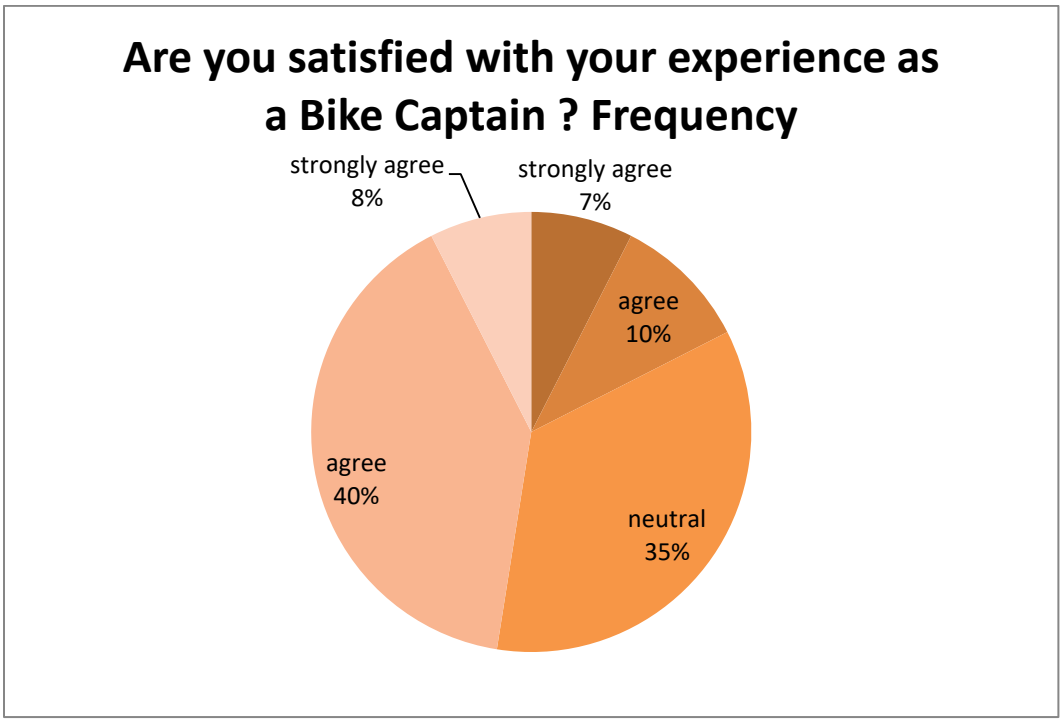

Figure 26 Motorbike Captain Satisfaction

The data shows the responses of Motorbike captains to the question "Are you satisfied with your experience as a Motorbike Captain?" The frequency and percentage of responses are presented in the table.

Out of the 40 respondents, 7.5% strongly agree that they are satisfied with their experience as a Motorbike captain, while 10% agree. The majority of respondents, 35%, are neutral about their satisfaction, while another 40% agree with their experience. The remaining 7.5% strongly agree. Overall, the data suggests that while a small percentage of Motorbike captains strongly agree with their experience, the majority have a positive view of their work as Motorbike captains. However, the relatively high percentage of neutral responses suggests that there is room for improvement in the experience of Motorbike captains, and efforts could be made to improve their job satisfaction

Chapter 7

WORKING CONDITIONS OF MOTORBIKE HAILING SERVICES CAPTAIN

7.1 Working in Extreme Heat Wave

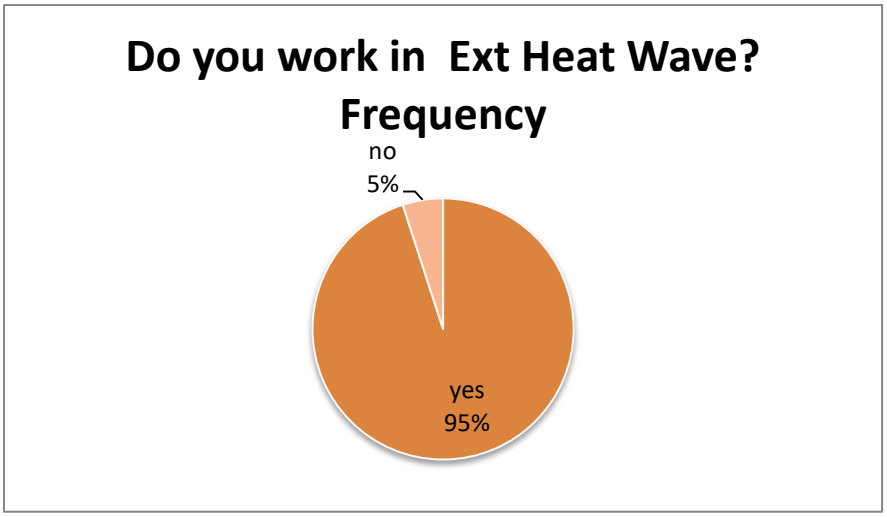

Figure 27 Working in Extreme Heat Wave

The table shows that 95% of the Motorbike captain work in extreme heat waves, while only 5% do not. This suggests that the majority of the Motorbike captain are willing to work in difficult weather conditions to earn their income. It also shows that the company providing the Motorbike hailing services should take measures to ensure the safety and health of their captain during extreme weather conditions.

7.2 **Working in Rainy Weather**

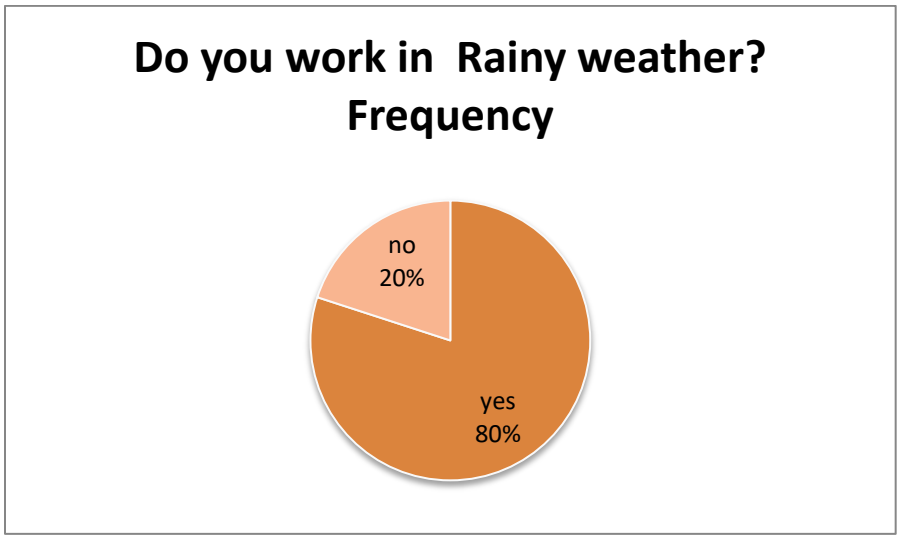

Figure 28 Working in Rainy Weather

The data shows that 80% of the respondents work in rainy weather while 20% do not. This indicates that a significant proportion of Motorbike hailing service captain are willing to work in unfavorable weather conditions to continue earning income. It also highlights the importance of having the proper gear and equipment to ride safely in rainy weather.

7.3 **Working in Extreme Cold Weather**

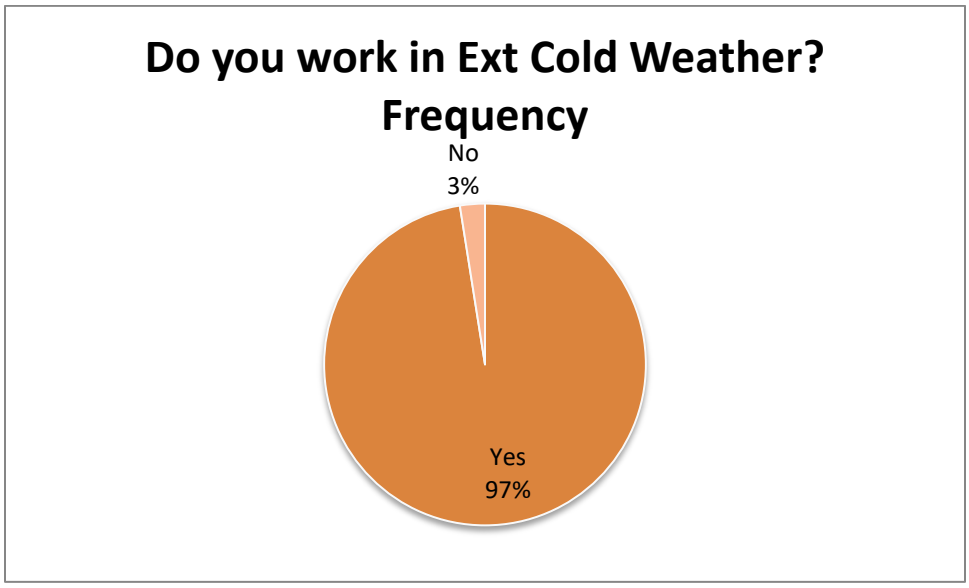

Figure 29 Working in Extreme Cold Weather

The data shows that 97.5% of the respondents work in extreme cold weather while only 2.5% do not. This suggests that the majority of the captain are willing to work in challenging weather conditions to earn a living. It also implies that the demand for Motorbike hailing services is high even in extreme weather conditions, and captain who are willing to work in such conditions are likely to have an advantage in terms of earning potential. However, it is important to note that working in extreme cold weather can pose health risks, and it is important for the Motorbike hailing companies to provide adequate safety measures and support for their captain.

CHAPTER 8

CHALLENGES FOR CAPTAINS IN RIDE HAILING

Motorbike hailing services have gained popularity in Pakistan in recent years due to their affordability and convenience. However, there are several challenges that these services face in the country.

One major challenge is the lack of proper infrastructure, such as dedicated Motorbike lanes and parking spaces, which can make it difficult for captain to navigate congested roads and find safe places to park. This is reflected in the data on working in extreme weather conditions, as Motorbike captains have to brave harsh weather while navigating the city.

Another challenge is the prevailing social norms that discourage women from using public transportation or working in certain industries, including Motorbike hailing. This can limit the pool of potential captain and captains, and create safety concerns for female captain. The data on the gender of captain and captains in Pakistan is not available, but it is important to address gender inclusivity in the industry to ensure equitable access for all.

Additionally, the lack of formal regulations and training programs for Motorbike captains can lead to safety concerns for both captain and captains. The data on the satisfaction of Motorbike captains reflects a mixed experience, which can be improved through better support and training programs.

Moreover, there is competition from other modes of transportation, including traditional taxis and app-based ride-hailing services, which offer similar services to Motorbike hailing. This makes it challenging for Motorbike hailing services to differentiate themselves and attract customers.

Finally, the issue of payment is a significant challenge, as many captain prefer to pay in cash rather than through digital payment methods. This can lead to payment disputes and safety concerns for captains who may carry large amounts of cash.

Overall, these challenges highlight the need for further development and investment in the Motorbike hailing industry in Pakistan, including infrastructure, regulations, training programs, and payment systems.

CHAPTER 9

CONCLUSION AND RECOMMENDATIONS

9.1 Summary of Findings

The study have explored the socio-economic profile of users of Motorbike hailing service users. Young adults(20-29years old) with higher education degrees are the major users of bike-hailing services in Pakistan. Lower to middle-income groups make up a significant proportion of users, but a sizable number of users also belong to the high-income category. Male users dominate bike-hailing services in Pakistan due to social and cultural factors. Students are the largest user group, followed by employees. When we explored the Trip characteristics it is found that average trip cost on Motor Bike hailing service is pkr 300 which is a quiet economical mode of transportation.

The study found that 34.9% of bike hailing service users in Pakistan use the service less than or 1x a month, while 21.1% use it on a daily basis. Most users use the service on working days and during midday. The most common reason for using the service is the unavailability of a car, with a majority having an average travel time between 0-40 minutes and experiencing a waiting time of up to 10 minutes.

Further this study also analyzed the adaptation and utilization of Motorbike hailing services and it is found that 31% of users have personally used ride-hailing services, and an additional 19% use ride-hailing with friends. University graduates have adopted ride-hailing services at double the rate of less educated individuals. Ride-hailing services are primarily used by those between 20 and 29 years old, with less than 1% of those aged 60+ and older having used ride-hailing services. Nearly a quarter (21%) of ride-hailing adopters in metro areas use them on a weekly or

daily basis.It is also been found that Users of Bike Hailing Services have been using walking and public transit more Often while Private Car less frequently .More than half of Users have been reported to adopt and use Motor bike hailing service for Food & Grocery while 9% have been adopted to use it on daily basis .

Later on this study explored the Users perception and satisfaction. Users prioritize pick-up and arrival time when making reservations on the app. Safety is a top concern, with a low probability of personal assault being the most important, followed by helmets and accidents. Users also value bike captains who have knowledge of the route and can assist in reaching the destination. While a large proportion of users agree that bike hailing is flexible, fast, and convenient, one-quarter of users disagree that it is reliable. The majority of respondents have a neutral opinion about whether bike hailing can reduce congestion. However, more than 30% of users disagree that bike hailing can reduce carbon footprint/pollution in terms of environmental benefits.

The socio-economic profile of captain was also explored in this study. It was found that the majority of captain are male and between the ages of 21-30. The largest income bracket for captain is PKR 25,000-35,000. The majority of captains have completed their education up to the intermediate level. When exploring household background, it was found that most captain come from households with a size of 4-6 members, where one person is earning.

Later on this study has explored the Captains sign-up statistics and preferences and it is found that Majority of captain’s haven’t signed up for any Motor Bike hailing service that suggests there is still un tapped market. It also suggest that the current bike hailing service providers may not be meeting the needs of captains they should explore the way to meet the needs of market. It is also found that the majority of Captains have been working for 3 to 6 months after getting fired and laid off from their last job due to increasing inflation and economic crisis in country.

When asked about their satisfaction level for Motor Bike hailing services majority of them had a neutral opinions suggesting that is a need of improvement in current Motor Bike hailing services.

9.2 **Recommendations**

The following potential recommendations were forwarded, based on the study findings:

Increase awareness: To increase the usage of bike-hailing services, it is recommended to conduct awareness campaigns to promote the benefits of these services. This can be done through social media, billboards, and other advertising mediums to target potential users and encourage them to try the service.

Improving the quality of bike hailing services: Addressing user preferences and concerns is crucial to enhance user satisfaction and increase their preference for the service. This can be achieved by providing user-friendly apps, easy payment options, and improving the overall riding experience.

Improve safety: Prioritizing safety measures is essential to build trust and confidence among users. Bike-hailing services should provide helmets to customers, ensure their drivers are trained to follow traffic rules, and take steps to minimize the low probability of personal assault.

Collaboration with government: Bike-hailing services should collaborate with the government to improve infrastructure for biking, such as introducing more bike lanes and bike parking areas. This will encourage more people to use bikes as a mode of transportation, thereby reducing traffic congestion and carbon emissions.

Improve bike-hailing services to meet the needs of Captain who haven't signed up: Analyzing the reasons why potential users have not signed up for the service can help bike-hailing companies to improve their offerings and attract more users. This may include providing more flexible pricing options, addressing accessibility concerns, or improving the overall user experience.

Improve rider retention strategies: Offering better incentives and benefits to keep captain engaged and motivated can improve rider retention. This can include loyalty programs, discounts, and personalized offers.

Encourage integration of bike hailing services in urban transportation planning and policies: Bike-hailing services should be integrated into urban transportation planning and policies to promote sustainable and efficient mobility. This can be done through collaborations with local authorities and promoting the use of bikes as a primary mode of transportation.

User feedback: Continuously collecting user feedback and incorporating it into the services can help improve customer satisfaction and overall service quality. This can be achieved through in-app feedback options, user surveys, and regular reviews of service quality.

9.3 **Future Research**

In developing countries like Pakistan where the Motor Bike Hailing Service is a new emerging mode of transportation but there is a lack of research on their impact on travel behavior and mobility patterns in the country. This study explores the travel behavior and mobility patterns In future research, it would be useful to explore the long-term effects of motor bike hailing services on travel behavior and mobility patterns in Pakistan. This could include examining changes in modal choice over time, as well as the impact of bike hailing services on traffic congestion, air pollution, and overall urban mobility. Longitudinal studies could also be conducted to track changes in user preferences and behaviors over time, which could help service providers and policymakers to better understand how to improve the service and promote sustainable urban mobility. Further research could be conducted to examine the impact of bike hailing services on urban development, such as changes in land use patterns and the emergence of new transport hubs in different parts of the city.

9.4 **Conclusion**

The study provides insight into the role of motorbike-hailing services on travel behavior and mobility patterns in Pakistan. The study sheds light on the profile of users and captain, their trip patterns, mobility options, trip purposes, trip costs, and reasons for using motorbike-hailing services. The study findings highlight the potential benefits of these services for urban mobility, particularly for young adults with higher education degrees and lower to middle-income groups. However, the study also identifies several challenges faced by captain, who are mostly males, have a low level of education, and earn below the minimum wage with a lack of job security. The study concludes that increasing awareness, improving the quality of services, collaborating with the government, improving services to meet the needs of non-users, and promoting integration of bike-hailing services in urban transportation planning and policies can help overcome the challenges and enhance the benefits of motorbike-hailing services. Policymakers and service providers can use this information to improve their services and cater to the needs of users and captain, ultimately contributing to the development of sustainable and efficient urban mobility in Pakistan.

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APPENDIX

User Questionnaire

Questionnaire Sr. No:_____ Date:_____ Area:_____

The purpose of this study is to examine **"*The role of bike-hailing services in travel behavior and Mobility*"**. This study is being conducted at National University of Science and Technology (NUST) Islamabad. The survey should only take 4-5 minutes to complete. Be assure that all answers you provide will be kept in the strictest confidentiality.

1. Age: _____

2. Household Income: _____

3. Education: _____

4. Gender: ☐Male ☐ Female

5. What is your current employment status? ☐ Employee ☐Unemployed ☐Student ☐Business Man ☐Retired.

6. How many Mobility options you had?

☐ Private car ☐Car hailing service ☐Public transit ☐Personal bike ☐Bike hailing service membership.

7. What is your preferred Mobility option?

☐ Private car ☐Car hailing service ☐Public transit ☐Personal bike ☐Bike hailing service membership.

8. What would be your preferred mobility option in bad/extreme weather?

☐ Private car ☐Car hailing service ☐Public transit ☐Personal bike ☐Bike hailing service membership.

9. Who often you uses bike hailing apps?

☐Have not heard of ☐have heard of but don't use ☐have used with friends but haven't installed app

☐Use only when travelling away from home ☐use traveling in and around home city.

10. Which Mode you prefer the most for your trips? ☐Public transit ☐Active transport ☐Vehicle ☐Ride Hailing.

12. What is the approx. cost of your trip? _____.

13. What is the monthly frequency of using bike hailing service?

☐Less than 1x a month. ☐1x a month. ☐2-3x a month. ☐1x a week. ☐2-3x a week. ☐Daily.

14. Which Day of week you mostly use bike hailing service? ☐Weekend. ☐Working days.

15. Which time of day you mostly use bike hailing service? ☐Morning peak ☐Midday ☐Evening peak ☐Night.

What is the purpose of trip while using bike hailing service? ☐Home-based ☐Non-home-based

16. What is the main Reason for using bike haling service ?

☐ Multitasking ability ☐Cannot drive☐Car unavailable ☐Parking is difficult☐Transit unavailable

☐Quicker than transit☐Weather.

17.On which of the following activities you mostly use bike hailing service ?

Trip to Restaurants and cafes. ☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

Trip to Shops and services ☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

Trip to Family and community activites. ☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

Trip to Parties ☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

Trip to Office ☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

Trip to School/College/Univ ☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

18. Since you started using on-demand mobility services such as Careem and Bykea do you find that you use the following transportation options more or less?

Public Bus/BRT ☐ Never used ☐ Rarely used ☐ Sometimes ☐ almost every time ☐ frequently used

Heavy Rail ☐ Never used ☐ Rarely used ☐ Sometimes ☐ almost every time ☐ frequently used

Bike ☐ Never used ☐ Rarely used ☐ Sometimes ☐ almost every time ☐ frequently used

Personal Car ☐ Never used ☐ Rarely used ☐ Sometimes ☐ almost every time ☐ frequently used

Walk ☐ Never used ☐ Rarely used ☐ Sometimes ☐ almost every time ☐ frequently used

19. After using bike hailing services what changes happened in your car ownership status?

☐Got rid of car and replaced it ☐No changes in car ownership ☐No car previously and still no car

☐yes had more than one car before and got rid of one ☐ yes had one car before and got rid of it.

What is the importance of different service characteristics while using bike hailing services rate them on a scale of least important to most important?

	Characteristics	*Least important*	*Slightly Important*	*Neutral*	*Important*	*Most important*
27	Availability					
28	Reliability					
29	Safety					
30	Clean lines					
31	Price					
32	Speed					
33	Privacy					
34	Coupons & Discounts					

While using Bike hailing Apps like Bykea or Creeam which of the following features are least to most important?

	Feature	*Least important*	*Slightly Important*	*Neutral*	*Important*	*Most important*
35	Notification of delays or cancelation of the service					
36	time for picking up					
37	time in arriving at the destination					
38	delays while on the vehicle					

Which of the Following factors are least to most important while considering Convenience of making a reservation?

	Factors	*Least important*	*Slightly Important*	*Neutral*	*Important*	*Most important*
38	Accommodation to change the reservation					
39	Being picked up at time selected by the traveller					
40	Convenience of the return reservation procedure					
41	Shortness of reservation time					

Which of the vehicle characteristics are least to most important while using ride hailing services?

	Statement	*Least important*	*Slightly Important*	*Neutral*	*Important*	*Most important*
42	Ability to pass every terrain					
43	Ability to travel far					
44	Assistance in getting from vehicle to destination					
45	Assistance in carrying packages					

While Using bike hailing service how would you rate the Responsiveness factors from are least to most important?

	Statement	*Least important*	*Slightly Important*	*Neutral*	*Important*	*Most important*
46	Ease of getting clear information on service					

47	Receptiveness to users' complaints and suggestions					
48	Procedure for follow-up on complaints					

While using bike hailing ride services which of Driver's Characteristics are least to most important?

	Statement	*Least important*	*Slightly Important*	*Neutral*	*Important*	*Most important*
49	Ability to handle medical emergencies					
50	Knowledge of the route					
51	Courtesy and friendliness					
52	Familiarity with habits and needs					

While using Bike hailing services which of the Safety factors are least to most important.

	Statement	*Least important*	*Slightly Important*	*Neutral*	*Important*	*Most important*
53	Low probability of personal assault					
54	Low probability of falling					
55	Availability of passenger attributes (helmets)					
56	Low probability of a traffic accident					
57	Drivers' obedience to traffic rules					

What you think about the benefits of Bike hailing services ?

	Statement	*Strongly Disagree*	*Disagree*	*Neutral*	*Agree*	*Strongly Agree*
58	Ride-hailing would make traveling flexible					
59	Ride-hailing would be reliable					
60	Ride-hailing would be a fast option to travel					
61	Ride-hailing would be a convenient way of travelling in my city					
62	Ride-hailing would be suitable for non-work trips					

What you think about Perceived Environmental benefits of ride-hailing services?

	Statement	*Strongly Disagree*	*Disagree*	*Neutral*	*Agree*	*Strongly Agree*
63	Ride-hailing could reduce congestion					
64	Using ride-hailing could reduce environmental pollution associated with my travel					
65	Ride-hailing could reduce the need for a personal vehicle					

67. What is your average waiting time for vehicle? _____.

68. What is your average travel time ? _____.

What are the reasons for using a ride hailing service for Food and grocery?

	Statement	*Least important*	*Slightly Important*	*Neutral*	*Important*	*Most important*
69	no one is available to go out and do grocery					
70	I just want to relax at home and let the rider do grocery and food					
71	ride hailing is convinet to use					
72	ride hailing is cheaper option					
73	ride hailing is reliable option					
74	ride hailing is quicker					
75	ride hailing is easy to use					
76	ride hailing is flexible option					

77 How often you use a ride hailing service for Food and grocery?

☐less than 1x a month ☐1x a month ☐2-3x a month ☐1x a week ☐2-3x a week ☐daily

Any Suggestions Recommendations

_____
_____
_____.

Captain Questionnaire

Questionnaire Sr. No:_____ Date:_____ Area:_____

The purpose of this study is to examine ***"The role of bike-hailing services in travel behavior and Mobility"***. This study is being conducted at National University of Science and Technology (NUST)

1. Age: _____ **2.** Income: _____ **3.** Education: _____

4. Gender: ☐Male ☐ Female **5.** Household size: _____ **6.** Number of children: _____

7. People earning in household: Males _____ Females_____ **8.** Do you own a Bike license: ☐ Yes ☐ No

9. How many Bike Riding services in total have you signed up to drive/deliver for? ☐ 0 ☐ 1 ☐ 2 ☐3 ☐4

10. Which service do you PRIMARILY drive for? ☐ Careem ☐ Bykea ☐Indrive Other _____

11. Where did you first hear about bike ride hailing service?

☐Heard from a relative ☐ Heard from a friend ☐Online Ad ☐TV Ad ☐From a rideshare driver ☐ Other_____

12. Why did you sign up to become a rideshare driver?

☐ Got fired/laid off from last job ☐ needed a more flexible job

☐ Just to try it out/pass the time ☐ Sign-up bonus ☐ Extra money ☐ Other _____

13. What's the most important thing to you as a driver?

☐Benefits (Bonuses) ☐ Pay ☐ Flexibility ☐Other: _____

14. What is your Current Status?

☐Full-time Rider ☐ Part-time Rider **15.** Average Work hours Per Week _____

16. How long you have been working as a rider? _____

17. How much do you earn per hour before expenses?_____

18. How much of your total monthly income comes from driving?

☐Very little of your income ☐ Less than half of your income ☐Around half of your income ☐Most of your income ☐All of your income.

19. Do you work in extreme Heat wave? ☐Yes ☐No **20.** Do you work in rainy weather ☐Yes ☐No

21. Do you work in extreme cold weather? ☐Yes ☐No

22. Do extreme monsoon season affect your service and what you do?

_____

23. Do extreme heat wave affect your service and what you do?

_____

24. Do extreme cold weather affect your service and what you do?

_____

25. If you have gotten into an accident while rideshare driving what happened?

☐ I was at-fault ☐other drive fault ☐ Other physical damage ☐ causing personal injury ☐Other_____

26. How many miles/km did you drive last month? _____

27. What price do you currently pay for Petrol? _____

28. In six months, do you expect gas prices to be higher, lower as you pay today?

☐ Higher ☐ Lower ☐ about the same

29. Do you own, lease or rent your primary rideshare vehicle?

☐ I lease the bike ☐ I own the bike ☐other: _____

30. Have you purchased or leased another Bike AFTER starting as a rideshare driver? ☐ Yes ☐ No

31. I am satisfied with my experience driving for bike service.

☐Strongly disagree ☐Agree ☐Neutral ☐Agree ☐Strongly agree

32. Average Speed _____ **33.**No of crash/accidents_____

34. Average Repair Cost of Bike_____

35. Do you have a Helmet with your bike?

☐Yes I have one helmet for me ☐Yes I have 2 helmets ☐No I don't have Helmet

36. Do bike riders had any union association. ☐ Yes ☐ No

37. Are you in touch with union association? ☐Yes ☐ No

38. No of time you got Fine/challan in last 3 Months _____

39. How much you paid in Fines/Challan _____

40. If you have a ride share related question, where's the first place you'll go for help?

☐ Colleagues Riders ☐Straight to bykea/cream/indrive ☐Driver Forum ☐Facebook ☐ Union association

41. Any Suggestions

_____.