

# **A SURVEY ON THE IMPACT OF BIKE RIDE-SHARING IN THE TRANSPORTATION SECTOR OF DHAKA CITY**

By

MD SHAHARIAR SIUM

FORHAD HOSSAIN SAIKAT

ASHFIA ISLAM

A thesis submitted to the Department of Civil Engineering in partial fulfillment for  
the degree of Bachelor of Science in Civil Engineering



Department of Civil Engineering

Sonargaon University

147/I, Green Road, Dhaka-1215, Bangladesh

Section: 16E

Semester: Fall

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## DECLARATION

It is hereby declared that this thesis/project or any part of it has not been submitted elsewhere for the award of any degree or diploma.

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*Dedicated*

*to*

*“Our Friends and Family and Honorable Teachers”*

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## **ABSTRACT**

Ride Sharing is a new concept in the transportation sector of Dhaka city. Different app-based ride sharing services are currently operating in the city. Although some riders tend provide ride sharing service without any apps. This study includes a survey on the impact of ride sharing services on the transportation sector of Dhaka City. Nearly 164 people were surveyed. Out of this, some were bike riders who were asked about their intention of ride sharing and the pros and cons they face while doing so. Some were Rickshaw and CNG drivers who were about if there's any economical downfall due to the rise of ride sharing in the city. Some car drivers were asked about the problems faced due to bike ride sharing in the roads. And some pedestrians and random people were surveyed about their views on ride sharing. This study showed that ride sharing can be a part time as well as a full-time profession and lots of people rely on this. In the transportation sector, ride sharing brings speed of travel which attracts a lot of users. Although there are some concerns such as rush driving, security etc but solving these issues will make this sector a profitable on the transportation sector of Dhaka City.

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# CHAPTER 1

## INTRODUCTION

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### 1.1 Background and Motivation

Ride-sharing services are a new form of transportation that positively contributes to the economy, the environment, and the economy and social sustainability. This service ensures convenient transportation through smartphone technology to enrich a personalized experience mobility of time. As a result, app-based vehicle service systems have increased dramatically over time. Years past as part of the search for the closest vehicle in a short period of time. Consumers always want a cheap way to get around where apps smooth the process again, With the advent of telecommunications, consumers can easily track the location of drivers, pick them up, provide fares, Positive consumption feedback was obtained through this mobile app used by ridesharing services.

Today, ride sharing is very popular in both developed and developing countries. As a result, academic researchers, entrepreneurs, businessmen, innovators, and policymakers emerge there is growing interest in the nature and economic impact of this rideshare service. from a business point of view. This service can create more opportunities in terms of market share and social benefits. Businesses also benefit from new aspects of service consumption and new areas of profit generation. In addition, users also benefit from ridesharing services as a possible solution for others. Traditional transport sector issues, such as reducing congestion and improving travel opportunities.

As a result, riding the wave of other countries, some ride-sharing companies have started operations. Bangladesh likes Uber, Pathao, Amarbike, Taxiwala, Garivara, Chalo, Sohoj Ride, Obhai, and Obon. Within a short period, these companies have unveiled innovative technologies that improve people's mobility. Convenient and flexible. In addition, the frequency of use is high, and there are many new entrants. Companies enter the market and competition increases. However, few such studies have been conducted initiated in least-developed countries like Bangladesh to address future growth realities ride share. Therefore, the purpose of this study is to understand its current status and prospects. Carpool opportunities in Bangladesh from a user's perspective. Therefore, in this study, we consider it aims to first identify the current state of ridesharing in Bangladesh and secondly to determine what it looks like. We

will explore the advantages and challenges of this service and, thirdly, the possibilities of carpooling in Bangladesh.

## **1.2 Objective of this study**

The broad objective of the study is to identify the socio-economic impacts of ride-sharing in the transportation sector of Bangladesh.

Specific Objectives:

1. To assess the impact of ride-sharing services in the transportation sector of Dhaka City.
2. To ascertain the prospects of ride-sharing service.
3. To explore the challenge of ride-sharing service in the transportation sector of Dhaka.

## **1.3 Outline of The Study**

This study has been documented in the following manner.

**Chapter 1 (Introduction):** This chapter gives primary understanding of the problem statement and objective of the study.

**Chapter 2 (Literature Review):** This chapter has been devoted to review of the earlier studies to set the guidelines for present work.

**Chapter 3 (Methodology):** This chapter briefly describes the data collection procedures.

**Chapter 4 (Results & Discussions):** Analysis and discussion of the obtained results are given in this chapter.

**Chapter 5 (Conclusions and Recommendations):** The specific conclusions drawn from this study and recommendations for further works are given in this chapter.

## **CHAPTER 2**

### **LITERATURE REVIEW**

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#### **2.1 Concept of ride-sharing service**

Ride sharing is a time and facility-oriented updated service using secure and convenient smartphone technology in real-time ride pooling where two groups of people driver and passenger exist (Geisberger, 2010). This service mostly involves efficient use of vehicles with different modes of transportation, usually car and bike. In the era of the digital sharing economic ride-sharing system extends with the availability of IoT (Internet of things), WoT (Web of Things), and smartphone technology to provide an opportunity for an easy and flexible communication system for both riders and users (Chan, 2012)(Farin, 2016). Consequently, transportation network companies can make a significant change in this industry through the use of updated technology to address the present demand of the new generation like reduced travel time, travel cost, a traffic congestion(Bicocchi, 2014).

#### **2.2 Different research conducted in this issue**

Ridesharing is no longer a recent development. It is currently one of the most popular ways to commute. Researchers have started to examine commuters' attitudes toward ridesharing in order to better comprehend the influence of ridesharing on the current transportation system. Some studies compare ridesharing to currently available transportation options like taxis or public transportation. (Sun, 2015). (Rayle, Shaheen, Chan, Dai, & Cervero, 2014) compared the use of taxis and ride-sharing services in their paper. The findings showed that ridesharing and taxi differed in terms of user context and user experience. The publication claims that ridesharing is more popular than taxis because of its lower waiting times and reliable means of transportation. (Limpin, 2018) explored the elements that influenced the users' favorable attitudes toward ridesharing of Philippine. Numerous studies proved that the service quality aspects of the ridesharing services are the key factor that contribute to their enormous popularity.

#### **2.3 Ride-sharing service in different countries**

Recently, Uber in San Francisco, California has been introduced as a solution to the present traffic situation and customer satisfaction which is backed by three

generations of ride-sharing methods that evolved over five decades (DeMaio, 2009) . According to the author, the scenario of the present and future bike sharing service was revealed through the first generation in Amsterdam in 1965 with limited facilities and scope. Then the second generation at Copenhagen, Denmark in 1991 with some technological improvements; and the third generation at different locations around the world like England, France, Taiwan, South Korea, China, Chile, Brazil, New Zealand, and the United States in 1996 by updating the service quality and facilities. Moreover, A study categorized the evolution of North American ride-sharing into five phases from 1942 to the present based on a premium group of the society, energy crisis, institutionalization, reliability, and the advent of technology. Furthermore, the use of ride-sharing services is rapidly expanding in different cities in Europe, the U.S.A, Canada, Denmark, England, and North America (Feeney, 2015). Amid the wave of the growing gig economy, the development of ridesharing services such as Lyft, Uber, and Sidecar has brought significant competition to the industry in those locations, in a study based on the demand patterns of different user groups, showed how to predict demand and competition for ridesharing services in a meaningful way. Their study postulates that creative carpooling has a tremendous positive impact on the lives of city dwellers and society, which also requires the cooperation of businesses and the government. In addition, ride-hailing services must adhere to the same regulations and standards set by governments for taxis in various cities in terms of price and safety.

### **2.3.1 Australia**

In October 2015, the Australian Capital Territory (ACT) authorized ride-hailing services and established additional regulations, including those requiring background checks, vehicle inspections, and driver insurance. In December 2015, New South Wales approved ride-hailing services. Criminal history and vehicle safety checks are mandated by law. To provide taxi drivers with compensation, the authorities developed a \$250 million "industry adjustment package."

In July 2016, South Australia allowed services similar to Uber. Apps that offer rides must adhere to the safety regulations outlined in the Passenger Transport Act. All metro taxi rides will now be subject to a \$1 fee to help pay for this support, and taxi services were given compensation up to and including A\$30,000 per license. In September 2016, Queensland made ride-booking services lawful. For the time

being, the operator won't need a license. But in 2017, the authorities will roll out a new licensing system.

### **2.3.2 New Zealand**

Small Passenger Services (SPS) Regulation's guidelines were released by the Ministry of Transportation. The amended law sought to unify the categories of taxis, private hire services including limos, shuttles, ride-hailing, and dial-a-driver services. Taxis will continue to function in a similar manner and continue to be classified as SPSs. Because a technology or app-based operator falls under the definition of an SPS, they must apply to be an authorized transport operator (ATO).

The measure includes a number of concessions for ride-hailing businesses, such as facilitating background checks and compliance checks for drivers and exempting them from English language and local knowledge requirements. Additionally, it eliminated safety standards for ride-hailing services, such in-taxi cameras.

### **2.3.3 Indonesia**

In April 2016 (regulation number. 32/2016), the Ministry of Transportation (MoT) formally released regulations for applications based on transportation services. According to the rule, ride-sharing businesses must collaborate with those licensed by the ministry to operate as transportation companies or apply for their own license to operate as a transportation company. Furthermore, a ride-hailing service's fleet might include vehicles with 1,000 cc engines (earlier it was 1,300 cc). The workers of partner transportation businesses or members of a cooperative of drivers should be the drivers of ride-sharing companies. By April 1, 2017, the firms must abide by the rule. The government put out a plan to regulate the cost of applications based on transportation services in March 2017. Additionally, the government will charge new businesses a fee.

## **2.4 Impact of ride-sharing in the transportation sector of Bangladesh**

The concept of ride-sharing is antiquated. However, the expansion of this service has recently gained popularity in emerging countries such as Bangladesh (Kamau, 2016). Also, the concept of ride-sharing in Bangladesh is very different from that in many other developed countries such as the US and UK. He refers to the concept of sharing a vehicle with two or more other passengers to reach the same destination.

In the country, Bangladesh, the concept reaches new dimensions by choosing a destination and searching for a ride using a smartphone app and an internet connection. Furthermore, Dhaka's infrastructure, road network and communication systems are not fully compatible with other cities in developed countries. However, previous ride-sharing research discussed in the section above focused primarily on various cities in developed countries rather than cities in emerging countries. So, there are still gaps in knowledge about the background, benefits, challenges, and prospects of ride-sharing in emerging countries like Bangladesh where ride-sharing is developing recently. Rigorous scrutiny in this regard is imperative that those involved in this gig economy know the current status and prospects of ridesharing in Bangladesh and strategize accordingly. And no preliminary study has been conducted on the current status and prospects of carpooling in Bangladesh. Therefore, research on this topic will be even more useful in the future.

## **2.5 Drivers' Growth**

Dhaka, as one of the world's most densely inhabited and congested cities, requires commuters to be very efficient, dependable, and safe when it comes to public transit. Ridesharing services provide commuters with advantages that traditional modes of transportation do not. Three-wheeler auto-rickshaws, or CNGs, have grown in popularity due to their ease of use and low fare. CNGs, on the other hand, took advantage of the elasticity of demand for transportation by refusing to charge by the meters put in the cars, raising prices, and refusing to proceed to locations that did not create a higher fare. Taxi taxis followed suit and began demanding outrageous fares, leading to the sector's demise.

According to the World Bank, traffic congestion in Dhaka consumes 3.2 million working hours every day, totaling 660 million working hours per year. Commuters have been blessed with the simplicity of locating transportation, doorstep pick-up, and app-based fare calculation since the launch of app-based ridesharing services.

## **2.6 Market dynamics and estimations**

The introduction of motorcycle-based ridesharing has not only saved travelers time and given speedier transit by escaping gridlocked traffic, but it has also produced thousands of job possibilities. In contrast to western cities, where car-based ridesharing services have increased in popularity, Dhaka has seen a surge in

motorbike-based ridesharing services that are less expensive than auto-rickshaws and taxi taxis. Motorcycle sales have continued to rise, with year-on-year increase above 40%. According to Reuters, over 200,000 drivers are presently registered with Pathao. Uber Moto, Pathao, and Shohoz Ride were early successes in motorcycle-based ridesharing. While Uber has the finest technology and driver training, Pathao has the most recognizable brand name and early success rate. Pathao got \$10 million in funding in 2018, headed by regional ridesharing heavyweight Gojek, while Shohoz raised \$15 million in funding, backed by Singapore-based Golden Gate Venture. Another ridesharing company, Obhai, has gone a step further by including CNG auto-rickshaws in its service offerings, charging commuters a reasonable fee via the app. While Shohoz pioneered online bus, train, and launch ticket sales, other platforms such as Uber and Pathao introduced food delivery services. At the moment, the projected market value for ridesharing start-ups across all industry verticals is \$300 million. The valuation is predicted to reach \$1 billion in the next five to seven years, however some insiders believe it may happen sooner.

## **2.7 Major Challenges**

The ridesharing industry's strength stems from investor capital, availability to talent in comparison to other start-up industries in Bangladesh, and exceptional publicity, among other things. Regulators' vigilance and skepticism, as well as unhealthy competitiveness, are all setbacks. Globally, share prices of ridesharing powerhouses have plummeted this year, raising severe concerns about the business model's long-term viability.

Pathao, which was valued at \$100 million, had enormous hurdles in Bangladesh when investors began to withdraw. Because of this posture, the start-up was forced to reduce through mass layoffs of mid- to upper-level staff. Another significant difficulty for platforms is maintaining consumer loyalty. When it comes to moving between the least expensive providers, utilizing different apps at the same time is not an issue.

## **2.8 Sustainability and policy directions**

Disintermediation has resulted in income losses for numerous sharing economy services. This occurs in ridesharing when the commuter and the drivers agree to transact without using the app that is supposed to connect them. It exposes platforms and their users since drivers are not accountable to anybody other than the commuter.



Professionals in the sharing economy argue that in order to maintain a sustainable business climate, ridesharing platforms must assure a proper ratio of drivers and commuters. Such platforms are increasingly relying on data analytics to analyze and forecast their users' behavior. However, they must improve their understanding of the user base while also customizing the user experience on and off the app.

Meanwhile, discussions about the numerous features of the proposed Ride Sharing Services Policy 2017 must continue. Auto owners and service providers have yet to reach an agreement on car registration policy, which permits a single car to be registered to just one platform. Drivers are currently treated as third-party contractors by ridesharing providers. One of the reasons platform-based sharing businesses employ the contractor-based approach is to keep business costs low. However, the hazards associated with this unclear interaction with drivers are not adequately managed in the existing model. These dangers prompted the most recent Uber ban in London. Some ridesharing platforms also shift away from ridesharing and venture other verticals. But how can authorities identify firms once they've expanded?

Some industry insiders believe that it is too early to regulate ridesharing start-ups if this market is to flourish. Regulatory measures must be implemented later in the process so that such enterprises may generate value creation, innovation, and job development. Despite recent doubts about its long-term viability, analyst estimates indicate that ridesharing services will continue to take a larger share of the global transportation pie. From 2018 to 2025, the ridesharing industry grew and is predicted to expand from roughly \$61 billion to \$218 billion, with yearly statistics reaching \$285 billion by 2030. Almost 100 million individuals are anticipated to utilize ridesharing services globally during the next three years.

## CHAPTER 3

### METHODOLOGY

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#### **3.1 Methodology of the study**

The study takes into account the perceptions of different participants in this industry to understand the current status and prospects of ride-sharing in Bangladesh. In addition, this study pursues a qualitative research approach with descriptive analysis. Qualitative approaches are often descriptive rather than numerical a more meaningful way to describe the real environment. Furthermore, qualitative approaches collect and analyze information to understand phenomena, meanings, truths, realities, and concepts in social science research.

In this context, a research questionnaire was created to gather users' perceptions of the socio-economic aspects of ridesharing services in Bangladesh. Surveys are primarily useful for describing the characteristics of large populations. Therefore, in this study, the survey questionnaire consisted of 13 questions distributed to potential respondents about their demographic profile and ridesharing experience. Using a convenient sampling method, the survey questionnaire was given to approximately 200 respondents at Kawran Bazar area, of whom 164 were helpful with a response rate of 64%, people weren't that much helpful with the conductive survey, many of them got angry and behave rude towards us. Additionally, the collected data were analyzed using simple descriptive statistics.

Thus, users' perceptions of the current impact of ridesharing services in the transportation sector of Dhaka City have been analyzed based on percentages, averages, and various charts.

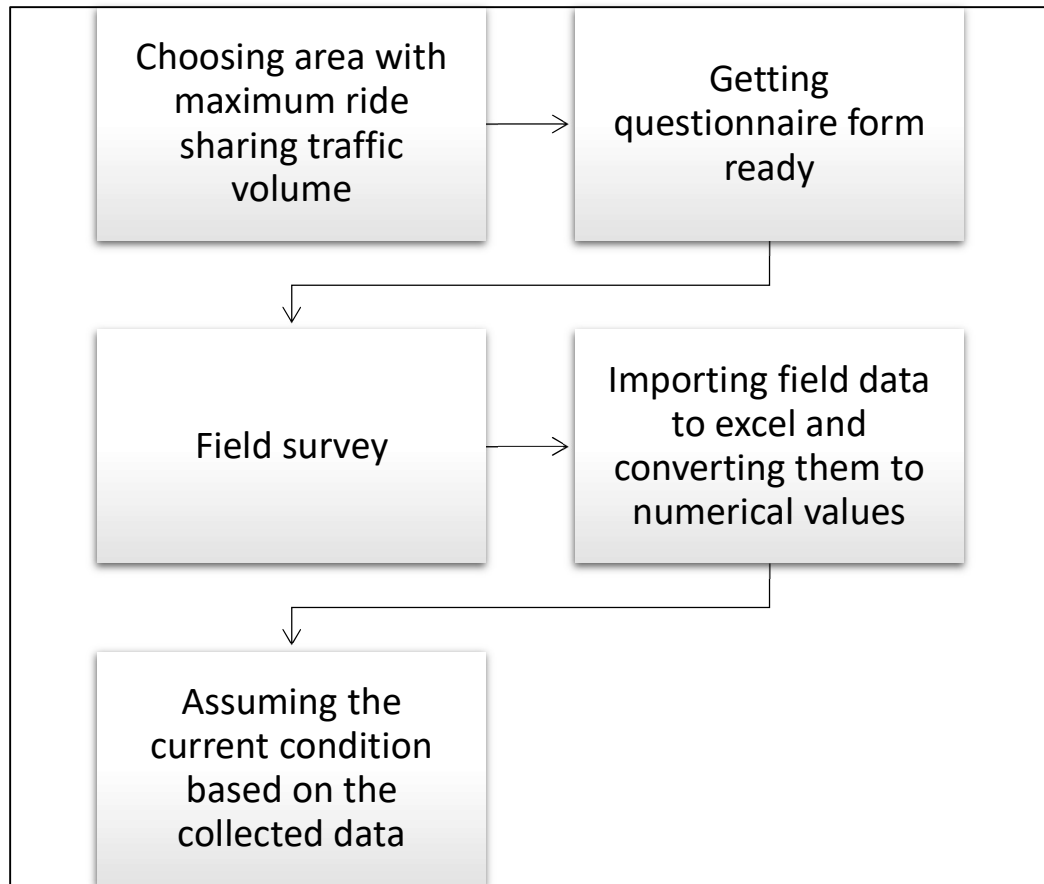


Figure 3.1: Flow Chart of work methodology

### 3.2 Data Collection

Data collection techniques have evolved. There are both pros and cons for researchers to use simple online surveys instead of paper surveys, and researchers often have many ways to collect the data they need from a sample. Each of these strategies has consequences due to different variables that influence the data collection process, such as different percentages of survey responses, time, interest, and incentives. For this survey, face to face interrogation technique was adopted. The data was collected from Kawran Bazar Signal. This signal was chosen because of the volume of daily traffic in this zone. Again, a large number of Ride Sharing Service providers can be seen in this signal. We asked Bike riders, Rickshaw and CNG drivers, Car drivers and random pedestrians regarding different aspects of ride sharing. We tried to collect their views on ride sharing and also collected to gather the negative sides of ride sharing and how they can be corrected.



Figure 3.2: Asking questions to rickshaw pullers about their concerns about bike ride sharing.



Figure 3.3: Asking questions to CNG drivers about their concerns about bike ride sharing



Figure 3.4: Asking questions to traffic sergeants about the problems he has to deal with bike riders



Figure 3.5: Asking questions to bike riders about their daily experiences



Figure 3. 6: Asking questions to random pedestrian about their concerns about bike ride sharing

### 3.3 Summary

The study considers the perceptions of different participants in this industry in order to understand the current status and prospects of ride sharing in Bangladesh. Using a convenient sampling method, the survey questionnaire was sent to approximately 200 respondents, of whom 164 were helpful with a response rate of 82%. The author also mentions these descriptive statistics summarize key numerical characteristics of data sets through frequency distributions, percentages, means, graphs and charts, and associated tables and figures.

## CHAPTER 4 RESULTS AND DISCUSSION

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### 4.1 Introduction

Out of the 164 respondents, 90.1% were male, 9.9% were female, 52.3% were under the age of 30, and 39.2% were between the ages of 30 and 50. 8.5% of the rest he is over 55 years old. Most of the respondents are employed, which is 52.3%, justifying that most of the users of rideshare services belong to the younger generation. Another 29.5% of users are from the business world and the remaining 18.2% are from the other profession.

### 4.2 Results

#### 4.2.1 Bike riders

While doing survey we designated the rider into two sides. 64% of the riders do fulltime riding and treat it as a job. On the other hand, 36% riders treat it as a part time profession.

They respond to the question whether ride sharing is their main income source or not, though the ride sharing app was built in a manner where people will share their ride with others, but in our country most of the people turned this into a full-time job. But along with them there are some job holders, students and businessman share their ride with others.

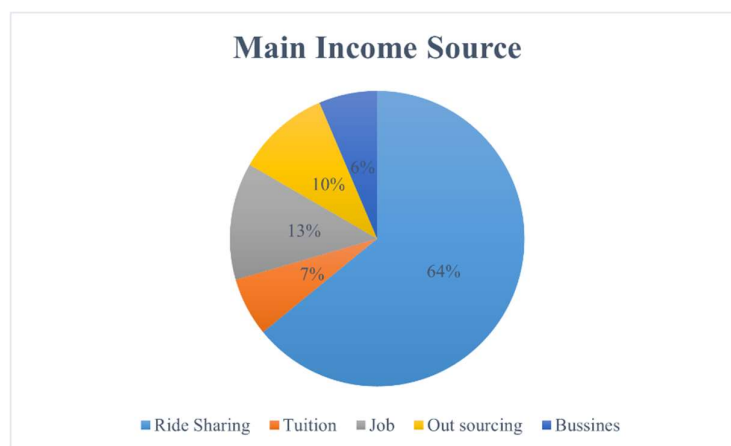


Figure 4.1: Main income source of riders

We asked the riders their usual problem they face on the road while riding. Majority of them responded that traffic jam is the main problem they face along with bad roads. Because of this congestion and tempered road, it causes them more time than average.

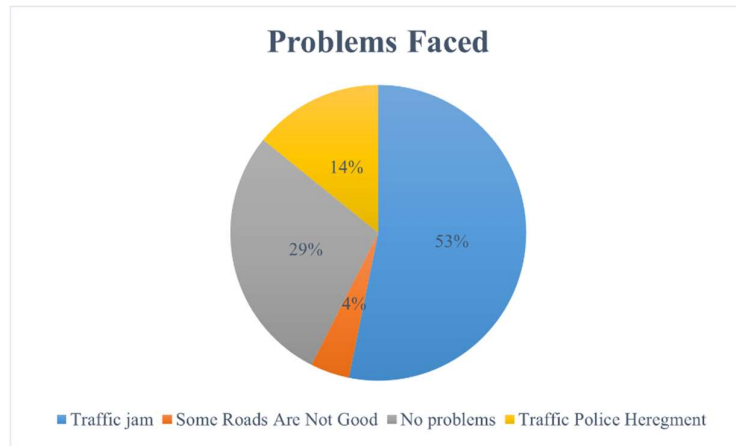


Figure 4.2: Problems faced by the riders

We asked the riders if they agree to use the app or not to find their rides or the operate in both ways app and contract. Almost 65% bike ride sharing riders don't use any type of apps at all. This raises a security concern to the people using their service.

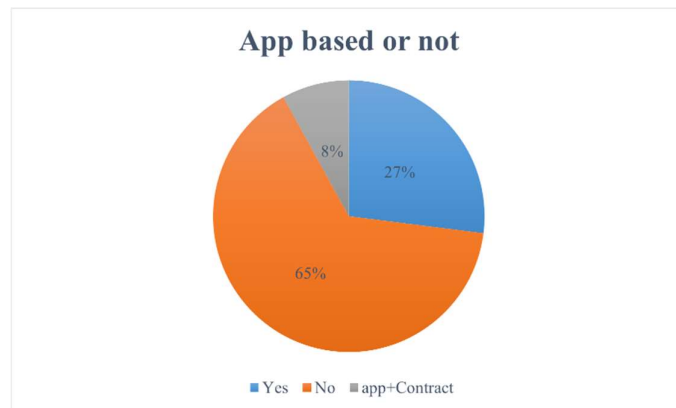


Figure 4. 3: App and non-app-based riders

The riders were asked about problems created by non-Motorized vehicles while their ride sharing job. 31% responded as there are serious traffic issue due to non-motorized vehicles. 54% riders don't face any problem. 11% riders face problems due to NMV drivers tend to change lanes drastically. Last 4% sometimes face problems.



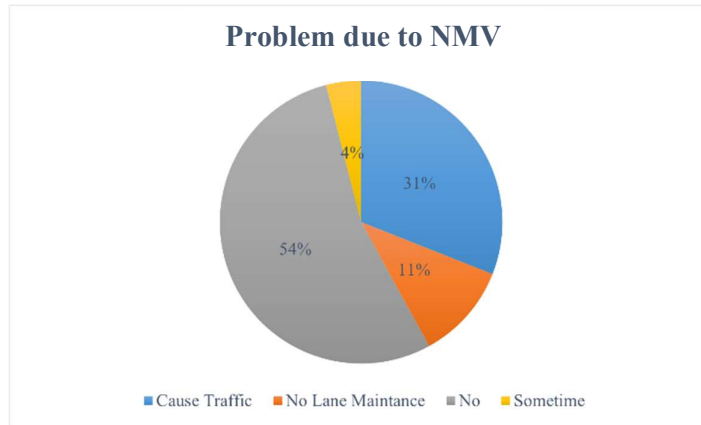


Figure 4.4: NMV problems to Ride-sharing

#### 4.2.2 Car drivers and owners

We asked private car owners for their opinion on the ride-sharing if they cause any problems for them on road. 59% car drivers said the face issues due to bike ride sharing services. Other 41% said the bike ride sharing service doesn't create any problem to them.



Figure 4.5: traffic problems due to bike

#### 4.2.3 Pedestrian

We asked random pedestrian about their experience on ride sharing app and their riders if they have contributed to traffic congestion or not. 31% normal pedestrians said bike ride sharing causes traffic rules violation and this cause them problem while walking on streets. 12% people are annoyed due to the random parking of bikes. 15% people are concerned about rush riding of bike ride sharing. 11% faces problems due

to the increase in number of bikes on the road. The last 31% pedestrian faces no problems what so ever.

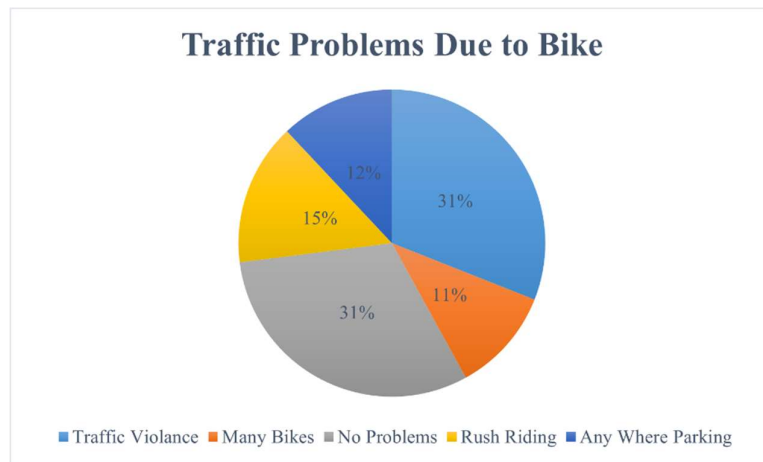


Figure 4.6: Pedestrian faced problem due to bike

#### 4.2.4 Rickshaw

In this study some rickshaw pullers were asked for their opinion on the ride sharing riders and if it has done any harm to their income or service. Almost 60% rickshaw puller faced no economic problem due to bike ride sharing. Other 40% faced a reduction in their income as people tend to use bike more than rickshaw for their transportation.

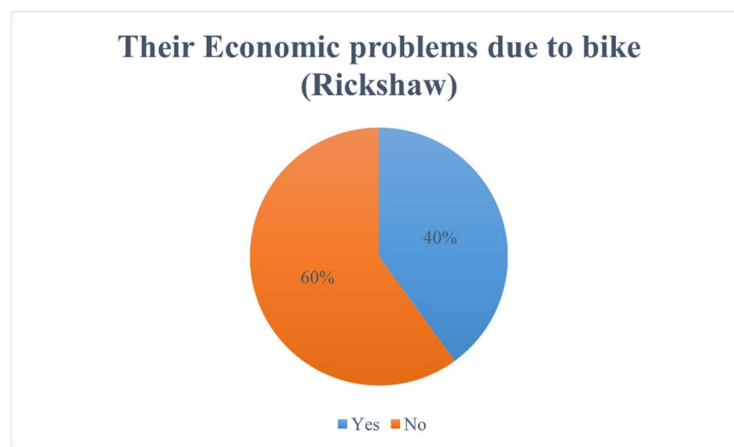


Figure 4.7: Rickshaw pullers economic problems due to bike

#### 4.2.5 CNG

Apart from cars and buses CNG has the large number on road, before this ride sharing app public used CNG for faster transportation and it was used as taxi. So, we asked them if ride-sharing hampered their income. Almost 91% CNG drivers have faced a

reduction in their daily income due to ride sharing service. The other 9% faced no change at all.

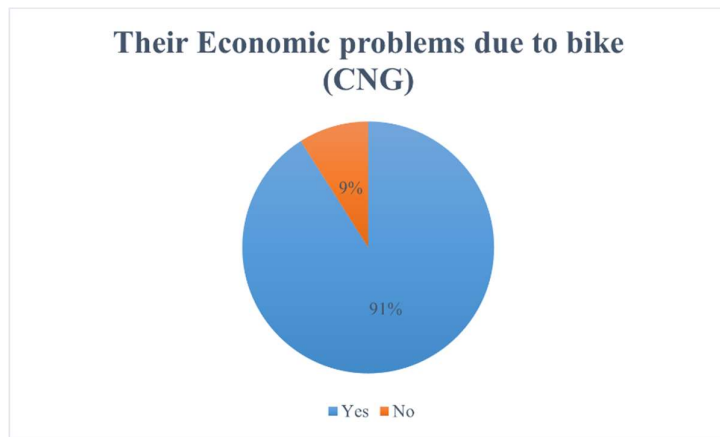


Figure 4.8: CNG drivers' economic problems due to bike

#### 4.2.6 Random People

We asked random strangers on the street if they use ride sharing, if they used what was their experience and what are their suggestions to improve ride sharing method. Among the respondents, 58% people use ride sharing service on a daily basis for their transportation needs. Other 42% don't use ride sharing at all.

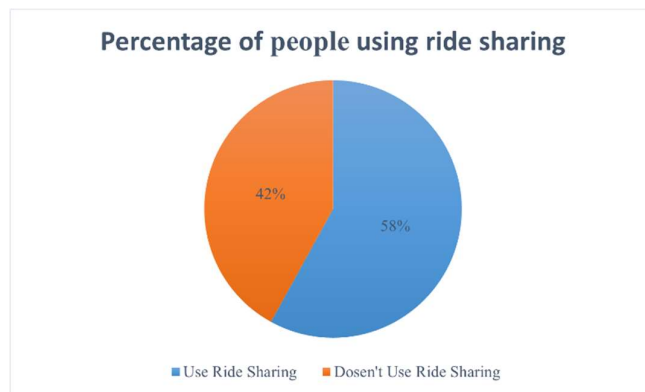


Figure 4. 9: Percentage of people using ride sharing

People's perspective on ride sharing has a mixed review. Almost 62% people think that ride sharing is useful in the transportation sector of Dhaka. The rest 38% raised some concern that are shown in the other chart.

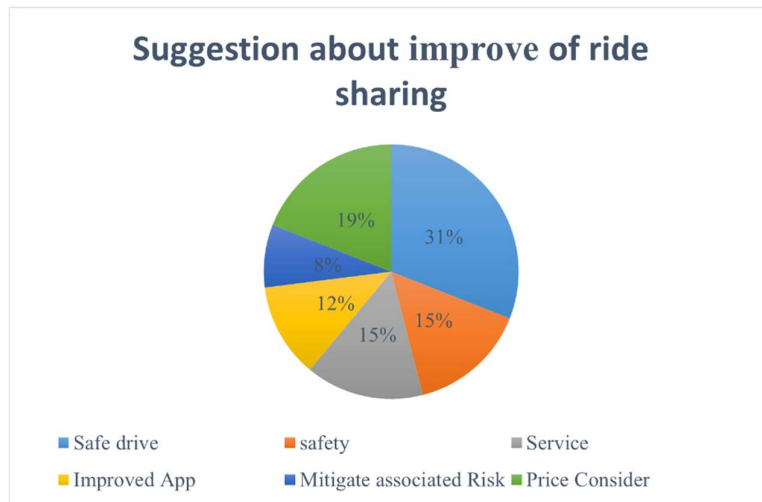


Figure 4.10: Percentage of concern regarding ride sharing

People who think ride sharing is not useful in the context of Dhaka city raised some concern. 31% of people said bike ride sharing must follow safely driving rules as some riders tends to drive very fast and dangerously. 15% people are concerned about the safety as most of the bike riders don't use any app. 15% people said bike ride sharing services should be improved more. They should be made customer friendly.

### 4.3 Summary

This study showed that in Dhaka city more and more people prefer bike ride sharing instead of the traditional transportation system. Although some people raise some concern regarding ride sharing, people have a positive view on this transportation system. This system has an impact on the economic development of the people living in this city. With proper management and implementation of traffic rules, bike ride sharing can be termed as a good option in the transportation sector of Dhaka City.

## **CHAPTER 5**

### **CONCLUSIONS AND RECOMMENDATIONS**

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#### **5.1 Conclusions**

From a Bangladeshi perspective, rideshare services have different impact. Appropriate initiatives must be taken from both executive and legislative perspectives to overcome the challenges and threats and seize the prospects and opportunities to make this service available to other cities successfully. To improve the quality and service of ridesharing services, governments can take decisive initiatives by adopting appropriate initiatives.

1. Ride Sharing has a good impact on the transportation sector of Dhaka city that can be taken to other cities as well.
2. Ride Sharing is saving huge amount of time as bikes can easily bypass traffic congestions.
3. Most of the people has a positive vibe towards ride sharing.
4. Although there are some negative issues but sorting them out can make ride sharing service a useful part of Transportation sector.

#### **5.2 Limitations and Recommendations for Future Works**

While conducting our research, we ran into some problems.

1. We lacked the resources to conduct a more comprehensive investigation that might yield additional information.
2. We also lacked sufficient staff to conduct a large-scale survey.
3. In addition, security issues were raised in some locations as local authorities did not understand the purpose of the investigation.
4. Few people agreed to participate in our survey. Some were upset, some questioned us.

For a better output, a large-scale survey must be done in the different places in Dhaka city. Anonymous answer submission system can be implemented as most of the people tend to get scared when they are asked question.

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