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E- CAB HAILING: A STUDY ON CONSUMER BEHAVIOUR

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ABSTRACT

India's taxi industry has changed drastically from street-hail, unorganised taxi format to app-based rides being used in all walks of life. Today, Taxi market is very modern and provides number of benefits to its users in terms of convenience, comfort, estimated travelling time, real time information, economy and safety. E-hailing of cabs has become an essential element of metropolitan cities and they provide more customer value than most of the traditional taxi services. For this paper, data has been collected from 120 respondents with the help of structured questionnaire. The purpose of this paper is to study various factors that influence the riders' behaviour while hiring an app-based cab.

Keywords: Cab-Hailing, cab-aggregator, mobile applications, e-hailing, e-wallets, riders, internet Connectivity

INTRODUCTION:

The word "taxe" is a German word meaning 'tax', 'charge', 'levy' or 'scale of charges'. The Medieval Latin word "taxa" also means tax or charge.

As India is moving towards urbanisation so is urban transportation sector. Increase in demand for transportation service is inescapable as it has been forecasted that there will be half a billion trips a day by people in urban India by 2031 resulting in reducing public and private transportation gap. With the use of smartphones and internet, commuters can call, message,

whatsapp or e-hail For-Hire Vehicle (FHV) like taxi or auto-rickshaw.

FHV began in 1959 as black & yellow taxis and auto rickshaws with bargaining of fares, rides refusal and poor income of drivers. Then came formalised fleet management companies dispatching vehicle from central control room or call centre. This was followed by 'on-demand' or 'aggregators' connecting drivers to commuters via smart phones using crowd-sourcing technology. Now, the ecosystem is further evolving with number of apps using real-time information providing

consumers more choice in terms of payment and comfort. Presently, India has demographic dividend who can easily adapt to innovative technology. So, this market needs to be tapped by more entrants with the spirit of healthy competition.

E-Cab Hailing

E-hailing refers to the process of ordering a car, taxi or any other mode of transportation by way of computer or mobile device. 'E' here refers to 'electronic' and 'hail' means the traditional process of signalling an approaching taxi cab to stop.

To book an electronic ride customer's pick up location is required which can be provided either by entering his address or his current location via GPS connectivity. These applications are designed by both car service companies and application start-up companies together.

Some of the most common e-cab hailing services are Ola, Uber, Taxi For Sure, Meru Cabs, etc. With the increasing use of smart phones and good internet connectivity, it is now easier for the Cab Aggregators to reach out to wider markets thereby increasing the customer base.

OBJECTIVES:

- To examine how app-based cab aggregators have made our life easier.
- To study the factors affecting adoption and usage of mobile app-based cab services
- To identify the popular mode of payment preferred by consumers while availing these services.
- To ascertain whether privacy and safety is a matter of concern for various consumers availing e-cab hailing services.

RESEARCH METHODOLOGY:

Design of Study:

The study is both qualitative and quantitative in nature. A structured survey was conducted on 120 respondents for the purpose of this research. It was divided into 3 sections:

Section A:

This section dealt with the basic information of the respondent having nominal scale of measurement. We used categorical variables like name, e-mail ID, gender, occupation, average expenditure (daily, weekly, monthly).

Section B:

This section contained dichotomous questions, which studied how cab hailing process has become a part and parcel of everybody's life.

Section C:

This section was prepared to understand the various factors that customers consider while hiring a cab. It included linear scale, multiple Choice questions, multiple choice grid, check boxes, open-ended short and long questions.

Data Collection:

Primary Data:

It was collected from a structured survey of 120 respondents.

Secondary Data:

Extensive data was collected from various books, published nationals and international journals, various websites, etc.

Statistical Tools:

For the purpose of findings and interpretation of this paper, we used different statistical measures i.e. Mean, Median, Mode, standard deviation, variance, range and standard error using SPSS software v.23. Data has been summarised using Pie chart, graph wherever suitable using excel facility.

LITERATURE REVIEW:

Sarvepalli, & Prakash (2016) proposed a model RIDE where 'R' stands for 'research' meaning thereby that the company need to do research continuously to meet the needs that the customer is looking forward. This will help in maintaining customer base as loyalty increases. 'I' stands for 'innovate'. Here, the feasibility of the research solution is checked. Next comes 'D' which refers to 'deploy' where mobile application is updated after conducting detailed testing of the features developed in the last step.

Lastly, 'E' denotes 'execute' implying that the company should perform this process quickly so as to have competitive edge over its competitors. Installing and uninstalling of mobile applications should not cause unnecessary discomfort/hardship to its customers. They suggested that RIDE model can be really beneficial for the future researches. They recommended that drivers must be provided with proper training and ride sharing concept must be advertised more.

Kumar, & Kumar (2016) studied the consumer behaviour by focusing on variables like coupon redemption, innovativeness and price changes while booking cabs. It has been revealed from the study that consumers are interested and

are comfortable to redeem coupons while using mobile applications to book a cab. They also suggested a further research on customer satisfaction with regard to selected cab-aggregators.

Chen (2014) proposed several technical improvements to solve issues related to honesty, accuracy, equality and safety while using mobile app-based taxi dispatching system. They studied that mobile applications in cab-hailing help both the driver and passengers to contact and find each other. At present, the mobile apps help customers to find cabs, trace the driver and call or message him to know his location. They also focused on further improvement related to route, taximeter and carpooling.

Khupse (2017) conducted a survey on 150 app based taxi users with a help of structured questionnaire and they chose only those respondents who have used app based taxi services at least 3 times and also have mobile applications on their phone. They found that reasons such as timely and quick availability of cabs, safety, cheaper than traditional model of taxies, cab-pooling, attractive cash back, coupons and discounts are the most common and significant reasons for using app based taxi services. They suggested that these service providers must focus on cashless system,

wifi-connectivity, negotiations and bargaining while improving their services. Venkatesh, & Easaw (2015) found that technology plays a very significant role in cab-aggregator services.

They studied the way Ola and Uber have tapped the Indian market using the smart phone technology and converted the loopholes in traditional transportation into their business opportunities.

HOW E-CAB HAILING MADE OUR LIVES EASIER?

Innovations in GPS connectivity has created significant impact on Indian transportation and the development of e-cab hailing mobile applications is one of the best technological innovation in the recent past. E-Cab hailing applications led to an increased competition in the taxi industry. In recent time, these services have grown more rapidly as more people enrol for these services. The aim of e-hailing apps is to minimise cost and maximise revenues for both the operators and passengers. Some of the benefits of using e-hailing apps are discussed below:

- High availability of cabs-It matches demand (How many passengers want to ride) with Supply (How many cabs are available) at a given time and place.

- Reduced waiting time and precision in start and end locations.
- Passengers can monitor the progress of the cab and can easily communicate with the cab drivers as driver's name and contact number is available after booking the cab.
- Identification and tracking of location by both the driver and passenger.
- Flexibility in route operations.
- SOS (emergency) button in E-hailing apps ensures trust, safety and security of the passenger.
- There is flexibility in making payment by any mode, be it cash or non-cash (e-wallets, plastic money, payment through e-hail app, UPI link, Internet banking, etc.)
- Rating of Driver's performance by passengers and consistently low rating can weed out unprofessional drivers. Similarly, drivers can also rate the passengers, thereby rude and aggressive passengers can be eliminated as consistently low rating and unsafe behaviour towards driver can lead to their account deactivation from the app.
- As transactions are cashless a driver need not worry about unpaid fares.
- Customer satisfaction in terms of no maintenance cost and no need to drive cars.
- Cab pooling is motivated by social mission mobility, environment protection, and cost savings.
- It would be beneficial for both govt. and the customer as govt. need not to make parking space available as a result of less traffic and individual can spend that amount in any short-term investment.
- With changing lifestyle, working couples having only one car can utilize this service as it would be within their budget with other benefits already discussed.

SALIENT CHARACTERISTICS OF CAB-HAILING APPLICATIONS (1st Table Below)

FINDINGS AND INTERPRETATION:
We conducted a survey through a structured questionnaire on 120 respondents to study the consumer experience with e-cab hailing services. Findings of the study are as follows:

(A) Demographics

This section comprises of customer's gender, age group, occupation, purpose of cab usage and e-hail app used. The results are shown in the following table below.

a) Gender

Information regarding respondent's gender was analysed as a percentage and the results are shown below: (Ref Table- 1)

b) Age

As per this survey, we found that the data is rightly skewed i.e., 21.7% are below 20 years, 55.8% are in the age group of 20-25 years, 14.2% in 25-30 years, 1.7% each in 30-35 years and 35-40 years respectively, 0.8% in 40-45 years and 4.1% in 45 years and above. (Figure 1)

Table 2 shows mean of the following distribution as 23.542 years, median- 22 years and mode- 19 years which clearly implies that the distribution is positively skewed. Standard deviation is 6.67 years with variance of 44.57 years. Range is 40 years with maximum value of 57 years and minimum value of 17 years. (See figure 1) & (Ref Table- 2)

c) Occupation and Purpose of cab usage

This can be observed from Table 3 that 61.7% of the respondents are students, 15.8% are service persons, 14.2% are professionals, 5.8% are doing business and 2.5% of home makers. Out of total 120 respondents, 73 use taxis for personal use, 7 uses it for professional use and 40 uses it for both the purposes. (Ref Table- 3, 4 & 5) & (Figure- 2)

B) Important facts discovered during the study

As per our survey, 80% of the total 120 passengers spend less than Rs.3000 on transportation a week. Table 6, shows the average expenditure incurred by a passenger weekly. According to Table 7, 95% of the total respondents have e-hail applications in their smart phones and 32.5% of them use them regularly.

Table 8 shows that 69.2% of the total respondents use e-hail apps daily.

Table 9 and 10 shows the distance travelled and average journey time of the passengers while using app-based cabs. It has been observed here that more than 65% of passenger's journey time is more than 30 minutes. (Ref Table- 6, 7, 8, 9 & 10)

C) Consumer Experience regarding e-hailing.

a) Benefits

Table below shows that ease of tracking the taxi driver is one benefit that attracts passengers the most towards e-hailing, others being flexibility in making payment, reduced waiting time, ease of booking and information about the fares beforehand. (Ref Table- 11)

b) Factors affecting consumers while booking app-based cabs.

Cleanliness, ride comfort, Safety, Quick action on complaint is some of the major factors that affect customers while booking app-based cabs (See Table 12).

c) Attributes of a driver.

During our study we observed that passengers give more importance to attributes of drivers like his pleasant and helpful nature, Attitude and presentation of driver, punctuality, driving skills & well mindful of the territory. (See table 13)

d) Popular mode of payment.

Table 14 shows that out of 120 respondents 100 make cash payment. 13 uses credit/debit cards. 38 use e-wallets which can be seen as a good indicator of a step towards cash less economy. Only 5 respondent uses internet banking as payment mode. Government need to make

a sound infrastructure so that customers feel safe to make payment via cashless modes. (See Table- 14)

e) Satisfaction Level: E-hailing experience.

Table 15 shows the satisfaction level of passengers using e-hailing cabs.

f) Privacy a concern or not.

From the given sample size, 100 respondents i.e., 83.3% have concern for their privacy while it is of no concern for the rest 20 respondents i.e., 16.7%. As data is the new oil in the near future. Risk of data being compromised by the app companies in lieu of some money is always there. Stealing of data by hackers in lieu of ransom is in trend now days. (See Table- 16)

CONCLUSION AND SUGGESTIONS:

In this paper we tried to study the behaviour of consumers in e-cab hailing. It has been found that consumers' decisions is influenced by many factors such as price, discounts offered, brand of cab aggregators, choice of ride-sharing, environmental consciousness, service quality in terms of driver's performance (Smartness, Punctuality, good driving skills), physical safety, privacy, etc.

In this digital era, the advent of e-wallets has replaced taxi meters resulting in a win-win-win situation for customers, drivers and cab aggregators.

The study reveals that e-cab hailing /ride sharing appeals to younger generation because of less waiting time, point to point service, relief from inconvenience of parking and drink & drive. It increases mobility option for people dwelling in cities. Ride sharing seems to be complementary to public transportation system.

Besides that there are some issues faced while travelling like-

- Rider may face sexual harassment.
- Cases of misbehaving by drivers.
- Navigation problems due to poor GPS connectivity.
- As India is moving towards digital economy, internet connectivity need to be sorted out and data charges need to be brought down so as to make it affordable to every potential consumer.
- The rating of a driver is not a reliable mechanism to book a cab on this basis.

Following are some of the steps to tackle these issues:

- Training of the drivers is the need of the hour. There should be

situation- solution test and training of drivers. Only one time training would not fulfil our purpose. Trained employees need to be re-trained from time to time as learning is a continuous process.

- Service is a process and if there is no standard measure to assess its performance, it cannot be managed efficiently and effectively.
- There is also requirement of sound and futuristic regulatory framework which would lead to better development of the cab hiring economy. Presently, there are no clear guidelines for consumers as to whom to approach in case of any fraud happening to them. If there are proper rules and regulations in place, it will encourage more people to use e-hailing applications.
- Cab aggregators can collaborate with insurance companies so as to take care of the security concerns of the riders. Both life insurance and general insurance can be offered as per the need and choice of the consumers.
- It is the diversity of our country that helps to get the recognition on the world map. Travel and tourism

can help us to earn foreign exchange which can be promoted if we sell experience of the tourist to build up our country's reputation. This untapped tourism market will add another dimension to e-cab hailing market. Thus, it will contribute to our country's GDP and thereby leading to its growth and development as infrastructure (both digital and physical) will be there resulting in improvement of the standard of living of the local people.

According to our survey, we observed that 95% of the respondents normally book cab using e-hailing cab application, rest either call a taxi company or book using taxi company website. 95.8% and 60% of the respondents feel safe while getting a taxi on their own during daytime and night time respectively. 40% of the respondents still feel unsafe while hiring a taxi at night and the reasons could be many like fear of eve-teasing, sexual harassment, loot, theft, and fear of life. 30% of the respondents feel safe with female drivers so more female drivers should be given opportunity to take driving as their career option. There should be proper police verification and training of cab drivers to encourage ethical and moral behaviour amongst them which

will have positive long term effects for e-cab hailing industry.

LIMITATION OF THE STUDY:

The geographical coverage and budget constraint could be taken as the limitation of this study as the data was collected from Delhi-based respondents only.

CONFLICT OF INTEREST:

The authors declare no conflict of interest.

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LIST OF TABLE:-**SALIENT CHARACTERISTICS OF CAB-HAILING APPLICATIONS**

	CHARACTERISTICS	IMPACT
1.	Easy user registration	Registration procedure in these apps is quite user friendly. It supports multiple languages that make registration an easy task.
2.	Ride booking	“How to book a ride” is a question that matters most to the customers. Booking a ride through these apps is uncomplicated. Customer can select a ride of his/her choice and as per his/her comfort. Customers can also book a cab for future date or can book outstation cabs. This makes e-hailing beneficial for passengers.
3.	Car-Pooling / Ride-Sharing	This is an ultimate feature of e-hail apps. It allows passengers to share their ride with other passengers on the same route resulting in individual's cost minimisation and contributes to pollution free environment.
4.	Customer/ Driver Information	These apps make it easy for both customers and drivers to locate each other. Apps make driver's name, contact number, his arrival time, and his location available to the customers thereby facilitating trouble-free communication.
5.	Tracking	This feature enables both customers and drivers to track or monitor the progress of the ride in the real time manner. Smartphone technology: convenience, internet connectivity, personalisation, GPS navigation, maps, have broken all the barriers of space and time.
6.	Security and Support	Security feature of cabs provide emergency buttons to passengers. Also one can add emergency contacts in the app in order to alert their dear ones to help them in case of any adverse situation. Support feature allows customer to report their problems and share any issue they faced during the ride to customer care centre of e-hail apps.
7.	Payment Options	One of the top motives of ride-sourcing

		via e-hailing is the ease of payment. Passengers can use e-hail app (eg. Ola Money) to make their payment. They can also use cash, e-wallets (Paytm, Mpesa, Mobikwik, PayUmoney, etc.), debit & credit cards, UPI-Link, internet banking, etc.
8.	Rating	This feature of the apps facilitates star rating by both the passengers and drivers. This encourages professional behaviour and fosters good communication between passengers and drivers.

Table 1: Gender

Gender Composition		Percentage
Male		55.8%
Female		44.2%

Out of total 120 respondents surveyed 55.8% were male and 44.2% female.

Table 2: Some statistical measures related to age.

Particulars		Statistic	AGE(years) : STATISTICAL TOOLS			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
N	Valid	120	0	0	120	120
	Missing	0	0	0	0	0
Mean		23.542	.010	.596	22.410	24.767
Median		22.000	-.024	.377	21.000	23.000
Mode		19.0				
Std. Deviation		6.6761	-.1150	1.0538	4.3685	8.5595
Variance		44.570	-.413	13.691	19.084	73.265
Range		40.0				
Minimum		17.0				
Maximum		57.0				

Table 3: Occupation

Occupation	Percentage (%)
Profession	14.2

Service	15.8
Business	5.8
Student	61.7
Home Maker	2.5

Table 4: Purpose of cab usage

Taxi Use	Percentage (%)
Personal	60.8
Professional	5.8
Both	33.3

Table 5: Choice of on-demand cab

Most frequent use of on demand cab	Frequency
Ola	67
Uber	50
Others	3

Table 6: Average Expenditure

Estimated expenditure for commuting (weekly in Rs.)	Percentage (%)
0-3000	80
3000-6000	12.5
6000-Above	7.5

Table 7: Application usage

Taxi Application on your phone	Percentage (%)
Yes, I use it regularly	32.5
Yes, But I rarely use it	57.5
Yes, But I haven't used it	5
No	5

Table 8: How often they travel by taxi

Travel by Taxi	Percentage (%)
Everyday	69.2
Every Week	20
Every Month	10.8

Table 9: Typical distance covered by respondent via e-hail apps

Distance	Percentage (%)
0Km-5Km	6.7
5Km -10Km	21.7
10Km-15Km	35.8
15Km-20Km	21.7
20Km- Above	14.2

Table 10: Average taxi journey time

Average taxi journey time	Percentage (%)
Less than 15 minutes	4.2
15-29 minutes	27.5
30-44 minutes	41.7
45-59 minutes	20.8
60 minutes or Above	5.8

Table 11: Benefits

Appealing benefits	Percentage (%)
Don't have to call	30.8
Don't have to signal a taxi in the street	30.8
Payment via App(No cash Changes hand)	25.8
Tracking the taxi driver	50.8
Taxi driver rating on the App	25
Taxi Apps record transactions with a named driver(Tracking and Safety)	44.2

Others	4.8

Table 12: Factors affecting Consumers

Factors considered while travelling via taxi	Important		Indifferent		Not Important	
	Frequency	(%)	Frequency	(%)	Frequency	(%)
Cleanliness	108	90	11	9.2	1	0.8
Ride Comfort	117	97.5	3	2.5	0	0
Spacious	81	67.5	36	30	3	2.5
Safety	115	95.8	5	4.2	0	0
Quick action on complaint	108	90	8	6.7	4	3.3
Condition of a car	95	79.2	21	17.5	4	3.3
Number of passengers	82	68.3	29	24.2	9	7.5
Length of the trip	76	63.4	37	30.8	7	5.8
Reviews	71	59.2	36	30	13	10.8

Table 13: Attributes of a driver

Attributes of a driver	Important		Indifferent		Not important	
	Frequency	(%)	Frequency	(%)	Frequency	(%)
Smart	51	42.5	40	33.3	29	24.2
Pleasant and Helpful	105	87.5	13	10.8	2	1.7
Attitude and presentation of driver	100	83.3	17	14.2	3	2.5
Punctuality	106	88.3	12	10	2	1.7
Driving skills	113	94.2	7	5.8	0	0

Well mindful of the territory	102	85	17	14.2	1	0.8

Table 14: Payment modes

Mode of Payment	Percentage (%)
Cash	83.3
Credit/ Debit Card	10.8
E-Wallets (paytm, Mobiwik, etc)	31.7
UPI Link	0
Internet Banking	4.2

Table 15: Satisfaction levels

Level of satisfaction	Percentage (%)
Very satisfied	15.8
Somewhat satisfied	55
Neither satisfied nor dissatisfied	21.7
Somewhat dissatisfied	5
Very dissatisfied	2.5

Table 16: privacy

Is privacy a concern while using app-based cabs?	Percentage (%)
Yes	83.3
No	16.7

LIST OF FIGURE

Figure- 1

*Figure 1: Frequency distribution and corresponding age groups.

Figure- 2