

# The Impact of E- Hailing Cab Service on the Public Taxi Service after Its Inception

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## ABSTRACT

India is a relatively large country with a wide variety of transportation options available to customers, including the traditional hand rickshaw, the cycle rickshaw, yellow and black cabs, buses, e-hailing, trains, ships, and aeroplanes. On-demand taxi services are among the most well-liked modes of transportation. The public taxi service consists of taxis that are occasionally just too old and sometimes with little comfort and safety for the commuters, whereas cabs are advantageous for people who do not know how to drive or are not familiar enough with the routes; they can easily book using the mobile app, which is just a tap away on their mobile phone. The private cab, on the other hand give a secure and comfortable ride, are stylish and appealing to a young audience, utilise cutting-edge technology like GPS to find the best and shortest routes at times, and allow commuters to share their location with their family out of safety concerns. Consequently, we conducted this research using variables and secondary data an average customer will be considering when ordering a taxi in order to examine the impact of e-hailing cab service on the public taxi service after its debut. A theoretical framework with variables with null and alternate hypotheses has been developed based on the research that has been gathered. Understanding the market size for Yellow and Black cabs as well as e-hailing cabs in India is one of the study's primary goals.

2. To comprehend the elements that influence competition in India's taxi sector.

3. To assess how technological changes are affecting the Indian taxi sector.

Due to the topic's recent emergence, there aren't many primary sources of data available for this research, hence secondary data is the research methodology used. Due to the dearth of data in

India, the secondary research that was used is from abroad. This is also due to the fact that the e-hailing trend began in western nations, and following their success, they widened their business to developing nations like, say, India, where the public taxi service is still being established. After examining and analysing the data, we have come to the conclusion that some of the independent variables we considered during our research—such as technological trends, comfort, safety, price, availability, and payment options—are in fact factors influencing the public taxi market because e-hailing cab services had an early competitive advantage over them. Due to the technology trends they employ, such as GPS tracking, which improved user safety, and the availability of numerous payment alternatives like mobile payments, the mobile developed by these e-hailing firms helped them advance. Wallets, debit/credit cards, and other similar items had a significant impact on the public taxi business and were successful in gaining market share.

**KEYWORDS:** E- hailing, yellow and black taxis, mobile apps, technology trends.

## I. INTRODUCTION

India has been developing at an impressive rate, with an increasing standard of living for its citizens. As a result, the demands and needs of the middle-class have also been growing. While many cannot afford to purchase their own vehicles, they rely on public transportation services to get around. Taxis have become one of the most popular forms of public transport in India, with millions of people using them daily to commute to work, go shopping, travel with family or friends, and more.

However, until the advent of e-hailing cab services, getting a taxi for short distances or to and

from the airport could be inconvenient. E-hailing services entered the market with the latest technology trends, such as GPS for better tracking and a mobile app for booking cabs at any time, completely transforming the taxi market in India. The e-hailing cab service market grew exponentially, with more private cabs on the road than traditional yellow and black taxis.

According to a study by Sunstone Business School, there are now more than 15,000 e-hailing cabs operating in India, with major operators like Uber, Ola, and Taxi for Sure holding around 70% of the market share. Other operators are also present in several cities, contributing to the industry's rapid growth.

The introduction of e-hailing cab services has revolutionized the taxi market in India, providing commuters with a more convenient and comfortable travel experience. E-hailing services offer better safety, comfort, and convenience than traditional taxis, which has contributed to their widespread popularity. With continued advancements in technology and the increasing demand for reliable and efficient transportation services, it is likely that the e-hailing cab industry will continue to grow and shape the future of public transportation in India. (Pandya, 2017)

## II. LITERATURE REVIEW

The taxi industry in India underwent a major transformation in 2010 when app-based cab services entered the market. These services soon became popular due to their convenience and door-to-door service. With just one click, customers could book a ride on their smartphones, leading to increased competition among cab companies.

Different models of cab service operations exist in India, the most popular of which is the Marketplace/Aggregator Model. This model is used by popular players like Uber, Ola, and Meru. Customers register with the app and use their smartphones to communicate with drivers. The E-hailing Model, introduced by Ola in January 2015, facilitates ride-sharing among commuters traveling on the same route and fixes a ceiling cost based on the route. Finally, the Self-Drive Model was popularized by Zoom and is similar to the models used by Hertz and Avis in developed countries. This model provides cars on rental basis charging on an hourly or daily basis and eliminates the cost of hiring a driver while providing flexibility in time.

The traditional taxi industry in India started with organized rental cabs in 2004, which became popular in metropolitan areas. However, it was the introduction of app-based cab services that

revolutionized the market in 2010. Consumers were demanding and wanted better quality services, which led to increased competition in the market. Cab companies had to up their game to meet consumer demands and stay relevant in the market.

Today, the market is dominated by big players like Uber and Ola who hold around 70% of the market share. These companies have disrupted the traditional taxi industry and created new business models. Their success can be attributed to the use of technology to enhance the customer experience and make it more convenient for them to book rides.

In conclusion, the taxi industry in India has undergone a major transformation in recent years, and app-based cab services have become the preferred mode of transportation for many Indians. The introduction of new business models and the use of technology have revolutionized the market, leading to increased competition and better services for consumers.

(Jain, December 14, 2015)

The Indian cab industry has undergone a massive transformation in recent years, thanks to the rising demand for e-hailing services. While the unorganized cab sector still dominates, the systematized radio cab service sector has seen significant growth, primarily driven by the changing lifestyle of the middle class. This demand has led to a tenfold increase in the industry from 2009 to 2013, particularly in metropolitan areas.

However, the organized sector's penetration remains low in tier 2 and 3 cities, where people prefer alternative modes of transportation due to lower per capita income. This trend is slowly changing as the quality of services provided by the organized sector is significantly better than that of the unorganized sector and public transportation.

E-hailing cab drivers offer 24/7 services, which is a huge advantage for commuters. Although the fares charged by these companies are higher than those of the unorganized sector and public transportation, the quality of service provided more than compensates for the higher cost. Rapid urbanization, changing cultures, and technological advancements have contributed to the growth of the Indian e-hailing cab industry in both value and volume terms.

The industry's earnings are projected to grow at a compound annual growth rate of about 25% between 2014 and 2019. This growth is due to the increased demand for better transportation services, convenience, and the ability to book a ride with just one click. The Marketplace/Aggregator

Model, E-hailing Model, and Self-Drive Model have all contributed to the growth of the industry.

In conclusion, the Indian cab industry is seeing rapid growth and transformation, with the e-hailing sector leading the charge. While the unorganized sector still dominates, the increasing demand for better transportation services, convenience, and quality is driving the growth of the organized sector. With projections for continued growth, the future of the Indian cab industry looks bright. (Reuters, 2019)

### RESEARCH GAP

This text discusses the changes that the taxi industry has undergone with the emergence of app-based taxi services. These services have transformed the way people book and pay for cabs, and traditional taxi companies have had to adapt to these changes. The article highlights three digital technologies that have enabled traditional taxi companies to compete in this new environment: dispatch software, driver apps, and automated telephone systems. These technologies have helped taxi companies improve their efficiency, reduce costs, and enhance the customer experience. The article also mentions a study that aims to understand the difference between customer perception and anticipation of app-based taxi services and suggests ways in which companies can improve their services to meet customer expectations. Finally, the article notes that app-based taxi services account for a small fraction of total kilometers driven but are expected to increase significantly in the future.

### III. METHODOLOGY

The Indian taxi market has seen a significant shift in recent years with the growth of e-hailing services. This trend migrated to India after a successful run in other countries, and e-hailing fleet service companies like Uber decided to experiment in developing economies like India where the taxi market was still developing and immature. The trend has now led to a surge in the number of organized cab services in India. To

better understand the usage differences between public taxis and e-hailing services, a research project was conducted using primary and secondary data sources.

Due to the lack of data available in India, secondary data was taken from various research studies conducted in other countries. The study focused on several variables, including technology trends, price, comfort, and safety, to identify the factors that affect the usage of e-hailing services in India.

In the case study, the public/e-hailing taxi market was taken as the dependent variable, and technology trends, price, comfort, and safety were considered as independent variables that affect the dependent variable either directly or indirectly. The null hypothesis was that technology trends, price, comfort, and safety do not seem to affect the public/e-hailing market, while the alternate hypothesis was that these variables do influence the public/e-hailing market.

Factor analysis was used as a method to identify the variables or factors that explain the correlation patterns within a set of observed variables. This technique also helped in reducing the data and identifying the specific factors that explain most of the variance in many variables.

The results of the study revealed that technology trends, price, comfort, and safety do indeed influence the public/e-hailing market in India. The availability of mobile apps for booking cabs and GPS-based tracking systems were found to be significant technology trends that affected the market. The study also found that price and comfort were critical factors that influenced commuters' decision to use e-hailing services. In contrast, safety played a relatively minor role in the decision-making process.

Overall, the research paper showed that the growth of e-hailing services in India is driven by several factors, including technology trends, price, and comfort. As the middle class continues to grow, demand for e-hailing services is expected to increase, leading to further growth in the industry.

Factor analysis for the Public Taxi market:

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.761
Bartlett's Test of Sphericity	Approx. Chi-Square	95.564
	df	15
	Sig.	.000

**Communalities**

	Initial	Extraction
TT1	1.000	.442
EA1	1.000	.479
S1	1.000	.460
TAR1	1.000	.449
COM1	1.000	.620
On the following scale, rate the importance of availability of different payment options while using the cab service?	1.000	.969

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.401	40.012	40.012	2.401	40.012	40.012	2.398	39.972	39.972
2	1.019	16.988	57.001	1.019	16.988	57.001	1.022	17.026	57.001
3	.793	13.219	70.220						
4	.676	11.267	81.486						
5	.637	10.616	92.102						
6	.474	7.898	100.000						

Extraction Method: Principal Component Analysis.

Variables such as Technology Trends, Safety, Tariff and Comfort are highly loaded on component1.

**Component Matrix<sup>a</sup>**

	Component	
	1	2
TT1	.664	-.040
EA1	.692	.015
S1	.678	-.036
TAR1	.650	-.163
COM1	.773	-.153
On the following scale, rate the importance of availability of different payment options while using the cab service?	.053	.983

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

**Rotated Component Matrix<sup>a</sup>**

	Component	
	1	2
TT1	.665	-.012
EA1	.690	.043
S1	.678	-.007
TAR1	.643	.190
COM1	.778	-.120
On the following scale, rate the importance of availability of different payment options while using the cab service?	.012	.984

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Factor analysis for the Private Taxi market:

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.927
Bartlett's Test of Sphericity	Approx. Chi-Square	187.141
	df	15
	Sig.	.000

	Initial	Extraction
On the following scale, rate the importance of availability of different payment options while using the cab service?	1.000	.523
TT2	1.000	.598
EA2	1.000	.483
S2	1.000	.625
TAR2	1.000	.306
COM2	1.000	.586

Extraction Method: Principal Component Analysis.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.120	52.006	52.006	3.120	52.006	52.006
2	.827	13.784	65.790			
3	.673	11.214	77.004			
4	.516	8.604	85.608			
5	.499	8.322	93.930			
6	.364	6.070	100.000			

Extraction Method: Principal Component Analysis.

Kaiser-Meyer-Olkin (KMO) is a measure of Sampling Adequacy which indicates the proportion off variance in variables that might be caused by underlying factors. High values generally indicate that a factor analysis is useful. (Pandya, Impact of use of Mobile Apps of Ola Cabs and Taxi for Sure on Yellow and Black Cabs, 2017)

#### IV. FINDINGS AND SUGGESTIONS

Based on the data so collected from multiple sources including questionnaires and personal questioning, we can get a clear picture of the current cab service sector in India and its increasing demand as the trend rises. The data so collected has been from a diverse group of people of different ages, belonging to different locations and having different preferences about the use of cabs as means of transportation on everyday uses. The main objective of this data analysis is to understand the cab service trend in terms of various aspects so involved like, social aspects, economic aspects, environmental aspects, etc.

Thus, it could be clearly inferred after careful analysis of the so collected data that the trend for cab services have been rapidly increasing after 2015, with the onset of online cab service like ola, uber, Rapido, etc, where in users can access these services through a click in their mobile phones. Since, this sector got digitalised, the majority users of this service were observed as the people belonging to the age groups of 15-25 or 30.

They are mainly students and working class people from urban areas who use it for regular commute to schools, colleges, workplaces and thru and fro. It can also be seen that a lot of people use them on daily basis to travel distances ranging from 5kms-20kms. These services have proved to be especially useful to them as they are safer, more convenient, easy to use, faster, more cost efficient, systematic and well managed and coordinated. The convenience of digital payment methods allowed in these services makes it even more preferable by people for everyday use. It was observed that most people spent around 500-3000 Rs. On an average every month to opt for these services. Users have also been very satisfied with the privacy and safety concerns so taken care by the service providers. It's been understood that though, in recent times, the cab services have gotten more expensive, it has been unaffected due to professional services and appealing benefits like cleanliness, professional drivers, punctuality, quick actions, comfortable rides, technology usage for routing, etc which are few important factors that the customers look into before opting for it.

Thus, from the analysis, it can be interpreted that this sector is on a bloom and has even wider potential in the future with increasing demands and technological adaptation. It can assumed that over the years the users will increase as more and more people will prefer this mode of transportation over private transport or other public



transports which could get hectic and inconvenient at times.

## V. CONCLUSION

The emergence of e-hailing services has transformed the Indian transportation market, leading to a significant shift from traditional public taxis to more organized and efficient cab services. To better understand the impact of this change, a research project was undertaken to analyze the factors influencing the shift towards e-hailing services.

The methodology involved collecting both primary and secondary data, with secondary data drawn from research conducted in other countries due to limited data available in India. This is because the trend of e-hailing migrated to India after a successful run in foreign countries, after which e-hailing fleet service companies like Uber decided to experiment in growing economies like India.

The research identified four key independent variables - technology trends, comfort, price, and safety - that impact the public taxi market as the e-hailing service operators had a competitive edge over them. The analysis revealed that e-hailing services managed to capitalize on changing market trends and introduced mobile booking apps with the growing use of the internet and smartphones. As a result, e-hailing services have become the preferred mode of transportation in metropolitan cities, leading to a significant shift from traditional taxis.

However, the research faced certain limitations, including the lack of meaningful data amidst a vast amount of data that could have been beneficial in the research. This is because the e-hailing trend is relatively new in India, and the market is still growing, making it difficult to access primary and secondary data.

In conclusion, the research project sheds light on the impact of e-hailing services on the public taxi market in India, highlighting the need

for traditional taxi services to adapt to changing market trends to remain relevant. The findings also emphasize the importance of data-driven research to better understand the impact of emerging trends in the transportation market.

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