

Taxi Services in Saudi Arabia through Mobile Apps: An Empirical Investigation

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Abstract

The study aims to evaluate and report the customer satisfaction in the taxi services using mobile applications. The study focuses on the latest trend in taxi services in Saudi Arabia, in which the technology is adapted in a modern way through online request using well-designed mobile applications to help passengers to ride a taxi. These applications connect passengers and drivers by providing taxi services in more efficient means. The famous companies that provide these services in Saudi Arabia are Uber, Careem and Easy Taxi. Generally, an improved service quality at taxi service market leads to the customer satisfaction, which is a very important measure for successful and sustainable business. Needless to say the customer satisfaction is one of the most valuable key performance indicators for any business. The study evaluated the customer satisfaction about the taxi services. The questionnaire has been designed to collect customer satisfaction information by measuring different factors. Five quality service factors have been studied, namely, mobile app convenience, driver's attitude, time reliability, price affordability and car condition. Among these five factors, only three factors indicated the impact on customer satisfaction in both correlation and regression analysis. Mobile app convenience and time reliability have a positive impact on customer satisfaction, while Price Affordability has a negative impact. The research shows that there is a significant impact of service quality factors on the overall taxi customer satisfaction.

Keywords: Customer Satisfaction, Taxi services Passengers, Transportation

1. Introduction

App-based taxi services have become the most important means of transportation given the efficient and convenient service they provide. Moreover, they are available all the time. Usually, taxis as private transportation are needed by the newcomers to Saudi Arabia and especially the womenfolk because of the absence of the public transportation. The authorities are faced with the challenge of making reasonable rules as there are three market segments having different attributes. Moreover, there is tough competition among the taxi service providers that leads to the improvement in service quality. Thus, it becomes necessary for the service industry to adopt the means that can assess the satisfaction of customers. In doing so they use digital means such as online mobile apps. The present study is unique in the sense that no such study has been conducted till date in Saudi Arabia before. It seeks to know how far the passengers are satisfied with the taxi services in an age when mobile applications have made it much easier to avail them with multiple choices. The famous companies that provide taxi services in Saudi Arabia are Uber, Careem and Easy Taxi. They continuously update their applications and improve their services to match their customer needs and to be compatible with technology advances in order to rival in the highly competitive marketplace.

1.1 Customer satisfaction

Customers have their legitimate expectations. If their expectations are met by the service providers then it can be said that customers are satisfied. If performance is much better than expectation then customer satisfaction level is very high (Kotler & Armstrong, 2009). In Fornell's view (1992) customer satisfaction is an overall attitude formed on the basis of experience when customers purchase a product or use a service. It shows satisfaction on customers' part. Oliver (1980) defines it as the after purchase judgment or evaluation of a product or a service. With the presence of competitive services the customer becomes smarter about the choices available to him.

1.2 Service quality # there is a difference between the dimensions in customers' perceived service and expectations of service (Parasuraman et al., 1988). For Lehtinen and Lehtinen (1982), service quality has the following aspects: physical quality, interactive quality and corporate (image) quality. The first one relates to the tangible features of the service (i.e. car condition). The second one is related to the interactive nature of services and implies the two-way flow that occurs between the customer and the service provider. The third one concerns the image attributed to a service provider by its current and potential customers, as well as other people. The study focuses on the online requests of taxi services. Efforts have been made to study the quality of electronic services. Zeithaml et al. (2001) proposed one of the initial definitions of e-service quality. According to their definition service includes both pre- and post-online service aspects. The criteria that customers have been found

to use to evaluate online services are information availability and content ease of use, privacy/security, graphic style and fulfillment (Babakus et al., 2003; Chang, 2007; Zeithaml et al., 2002).

2. Review of Literature

Cronin and Taylor (1992), see customer satisfaction as the top most priority of consumers. There is a connection between Customer Satisfaction and service quality. Rabiul Islam et al (2014) concluded that reliability of services as well as waiting time seems to be the most important cause of customer satisfaction. The main question this paper seeks to explore is: Would the customer satisfaction get impacted by the quality service provided by the mobile apps-based taxi services? YAO Zhi-gang et al. (2011) their study predicted about the service quality and satisfaction in taxi industry and showed reliability and validity. The results of the study show that the improved service quality can increase satisfaction of taxi passenger. Emmanuel N. H. (2015) in a study showed that service quality, reliability, nonstop service, safety, comfort, affordability and driver's attitude influence the customer satisfaction. In Amman a study for public transportation by Rana Imam (2014) concluded that shared taxis are satisfied with the cost, ease of payment, and journey travel time. Erin Roulston (2014) used Random digit dialing (a Computer Assisted Telephone Interviewing System) to assess customer satisfaction. The study found that the key factors influencing overall customer satisfaction were: satisfaction with drivers; the ability to speak with dispatchers in a timely manner; the politeness of dispatchers; satisfaction with experiences during the journey; and, value for money. According to Ray A. Mundy (2014), in Huston Taxi Study, Service quality includes vehicle quality, driver behavior, waiting times for taxis. according to a study by Transport for NSW (2014) customers have been found to be satisfied with convenience and accessibility, including ease of booking the taxi, convenience of drop off at destination and adequate space during the journey. An Ipsos Public Affairs in Toronto (2015) study found customers to be very satisfied by Uber. Moreover, service cost is low and the mobile apps are of high quality. But there is no adequate insurance that constitutes the weakest part of Uber services.

3. Research Problem

The research seeks to analyze whether app-based taxi services provide satisfactory and effective service or not? It seeks to identify those factors that are responsible for quality service. These include mobile apps drivers' taxi vehicles charges and timings. The further aim of research is to draw the attention of the transportation authorities toward providing better regulations in regard to taxi services. Customer protection, reasonable prices, traffic volume are some of the issues that need to be addressed at the government level.

4. Research Objectives

For the purpose of the research a questionnaire has been designed to seek opinions from residents of Riyadh. The objective of the questionnaire is to:

- Evaluate customers satisfaction;
- Identify and analyze quality factors related to customer satisfaction;
- Examine a relation between quality factors and customer satisfaction;
- Evaluate customer demand of taxi services based on demography;
- Examine frequency of customer demand; and
- Measure comfort level with driver's attitude and behavior.

5. Methodology

The part gives attention to the research methodology employed in the study. It covers descriptions of the research design and also focuses on the quantitative measurements for the study. It also covers the description of techniques of data collection and types of data collected. The part talks about the statistical tests used to analyze the data and the importance of several variables.

5.1 Data Collection

Primary data has been collected online by way of a survey. Not only the, secondary data has also been made use to make sure that the sample size is sufficient. The concerned population of Riyadh has been taken into account. Also, Riyadh population and population growth rate from Index Mundi is used to measure the sample size. Male-female population ratio in Saudi Arabia from Index Mundi is has been taken into account to check the accuracy of male-female distribution in the sample to change quantitative percentage into figures (number of trips).

5.2 Experimentation

The main purpose of the study is to examine how quality services in taxi affect customer satisfaction especially when online mobile are used to avail taxi services.

5.3 Proposed Taxi Service Quality Model

The research has counted “Mobile App Convenience” as one of the important service quality factors. It seeks to examine the relationship between some factors of service qualities and taxi customer satisfaction. Some of the service quality factors include Mobile App Convenience, Driver Behavior, Time Reliability, Price Affordability and Car Condition. The abbreviation PCADT will be used to refer to the model of the study a list of variables is there for each factor. The main factor value is calculated using the average of its related variables.

In the light of literature reviews and the PCADT model one can see to see that customer satisfaction and service quality are interrelated. Moreover, service quality can be measured by the five service quality dimensions in PCADT model. The assumption here is: the five factors might have an impact on customer satisfaction.

6. Research Hypothesis

The supposed relation between the service quality factors: Mobile App Convenience, Driver Behavior, Time Reliability, Price Affordability and Car Condition with the general customer Satisfaction has been examined in the study. The main hypothesis in the study at hand examines the relation between customer satisfaction and service quality factors of taxi services. Based on that, the other hypotheses are:

- H1:** Mobile App Convenience affects positively and significantly on customers.
- H2:** Driver Behavior affects positively and significantly on customers.
- H3:** Time Reliability affects positively and significantly on customers.
- H4:** Price Affordability affects positively and significantly on customers.
- H5:** Car Condition affects positively and significantly on customers.

Dependent variables

The general satisfaction of customers with taxi services through mobile apps is called Dependent variable. The two scale of satisfaction, are “yes” and “no”. To take the average value the “yes” and “no” to numerical values 2 and 1 respectively.

Independent variables

The service quality factors imply the independent variables, including Mobile App Convenience, Driver Behavior, Time Reliability, Price Affordability and Car Condition. The PCADT model represents all independent variables and their relation to dependent variable. To make a quantitative measurement, a design questionnaire was used to target customers in Riyadh. The questionnaire was meant to determine the level of customer satisfaction related to the different form of taxi transport, and includes closed questions and a few open-ended questions which are based on customer satisfaction and service quality factors. The questionnaire contains 35 questions grouped into five categories, which are as follows: Six questions for respondent demographics. Six questions for mobile applications category. Five questions for driver category. Seven questions for time category. Three questions for price Category. Five questions for car category. Three questions for overall satisfaction.

For calculating sample size the following inputs have been taken into account:

- Specify the desired margin of error (Me). $Me = \pm 4\%$.
- Confidence level is 95%.
- Specify alpha, where $\alpha = 1 - \text{confidence level} = 5\%$.
- Find the critical standard score (z). z is the value for which the cumulative probability is $1 - \alpha / 2$, $z = 1.96$.
- p is the target proportion, which excludes 20% of Saudi population who are below 18 years.
 $p = 80\%$, $q = p - 1 = 20\%$
- Riyadh population (N) = 5,700,000

$$n = \frac{z^2 \cdot p \cdot q + Me^2}{Me^2 + (z^2 \cdot p \cdot \frac{q}{N})}$$

$$n = \frac{(1.96^2) \times (0.8) \times (0.2) + 0.04^2}{0.04^2 + (1.96^2 \times 0.8 \times \frac{0.2}{5700000})}$$

$$n = 385$$

As much as 615 online questionnaires were filled but only 419 responses were accepted. So, The actual response rate remained 68% (n=419).

7. Research Limitations

The research study had to face the following limitations:

The medium of expression remained Arabic and English with an online version mainly. Non-Arabic and non-English speakers could not be targeted. Also, non-internet speakers could not be targeted. Some questionnaires remained incomplete. They have not been used. The Sample size was adequate to represent the population (the

target: 385 and the actual: 419), but due to time constraints, the invitations were sent by emails, WhatsApp groups, and tweeter accounts, the possibility of bias therefore cannot be ruled out in the target samples. The study was limited to Riyadh. The study was one of its kinds as there was no previous study available on the subject in the context of Saudi Arabia. The same weight has been given for quality factors like Driver Attitude factor, to measure the average of service quality.

Customer Satisfaction and Service Quality Factors:

The overall customer satisfaction with taxi services is relatively high (87.4%). By measuring the satisfaction for those who use the modern smart online taxi booking, the value is very high satisfaction (92%) in average, which is %95.5 for Careem, 92.5% for Uber and 86% for Easy Taxi. The satisfaction level of the other respondents who prefer the traditional taxi service is nearly 73%. Mobile applications provided by modern taxi companies have added values to customers. For the factor, two variables has been examined by asking the respondents the question of how do passengers evaluate customer services in these companies in case of complaints and the other question is whether they feel satisfied with the value provided by the mobile apps on taxi services or not.

the mean value for the “Evaluation of customer services” is 3.52 out of 5.00 (70%) and the mean for Satisfaction of mobile use is 3.89 (78%). “Mobile App Convenience” factor is slightly correlated with general taxi customer satisfaction in positive direction. Taxi drivers do their best to provide good quality of service and they look for the satisfaction of their passengers, because at the end of the trip they will be rated by passengers using the application. The rating affects the system selection of the proper driver for a passenger request. The system will select the drivers with high rating to provide better service for customers. Frequent customer complaints will lead to driver inspection and then blacklisting the driver. Some questions were asked to evaluate driver knowledge of the city, driver's ethical behavior, driving attitude and speed behavior of drivers and the driver professionalism (i.e. honesty, politeness, dress, help with luggage, etc.). Driver's ethical behavior is rated very good, scoring 4.1 (82%). Driver's knowledge of the city has an average 76% (3.78) and Attitude and speed is 70% which are relatively good. In the other hand, low score of 56% for Driver's professionalism.

These variables show a very weak correlation with general customer satisfaction this could be attributed to the low level of skills for drivers who need to have intensive training and education for the quality of service. As well as, another reason could be because of the recent introduction of the technology in Saudi Arabia which it does not reach its maturity level of development. The applications give the customer the ability to know the estimated time for the taxi to arrive, so they could wait at a convenient place until the driver arrives. The application automatically selects a driver near the customer location to save time. The Geographical Positioning System (GPS) integrated with customer request, provide features for drivers to locate the customers easily and to reach the drop off location with application suggestion of the shortest path. While customers can view the same map, he can estimate the trip duration. The respondents asked some questions to assess whether the app helps to save time, if drivers arrive exactly to customer location on time and whether they reach the destination on time. 85% of tax customers see that the applications can help them to save time and nearly 67% of the drivers arrive on time. The drivers reach destination on time on average of 3.7 (74%). Time reliability variables show a very weak correlation with general customer satisfaction. Some of these applications use a predefined formula to calculate the taxi fees fairly. The most common formula is as follows:

Trip Price = base fare + fare per unit of time + fare per unit of distance.

However, the price is calculated by the system, customers have to accept it and there is no chance for negotiation. In other applications like easy taxi the price is negotiable between the driver and the passenger.

Price Affordability has been assessed using two variables “whether customers believe that the price is acceptable” and “if they face any difficulty with driver in price negotiation”

The Acceptable Price variable has an average value of 62% (3.1), while there is a difficulty in price negotiation with driver with mean value 2.9 (58%) and high variation (1.7). The low value of scores and correlation for the factor are due to the different business model by the taxi service providers in Saudi Arabia, and also due to the price affordability in taxi service compared to other countries. The low fuel price plays an important role, where a 20-kilometer-trip cost SR 1.50. When modern, clean and good condition cars are used by the taxi service providers, customers are expected to be more satisfied. The respondents asked two questions related to the importance of car model and the importance of car inside and cleanliness. The importance of car model has an average of 63% among all respondents, while the importance of car inside and cleanliness has a very high score of 93%. The correlation between Car Condition factor and customer satisfaction is almost zero, reflecting that the customer satisfaction of using the mobile apps to request a taxi is not directly impacted by the car model or cleanliness.

A zero correlation suggests that the correlation statistic did not indicate a relationship between the two variables. It is important to note that there is no relationship at all; it simply means that there is not a linear relationship. The relation is supported by the respondent selection of the preferred vehicle type, normal vs luxury and the vehicle ownership, private vs licensed taxi. More than a third of respondent answers were they don't care.

However, in case the customer is overcharged due to negligence of captain, the amount is refunded.

Table 1

The mean, variance and correlation values of the variables used

Factors	Factor sub-items	Mean	%	Variance	Correlation*
Mobile App Convenience	Evaluation of customer services	3.515	70%	1.657	0.396
	Satisfaction of mobile use	3.893	78%	0.712	0.445
	Average	3.751	75%	0.804	0.471
Driver Behavior	Driver's knowledgeable of the city	3.776	76%	0.69	0.191
	Driver's ethical behavior	4.093	82%	0.934	0.178
	Attitude and speed	3.482	70%	0.88	0.196
	Driver's professionalism	2.807	56%	1.187	0.157
	Average	3.539	71%	0.323	0.301
Time Reliability	The app help to save time	4.267	85%	0.754	0.274
	Arrival to customer location on time	3.371	67%	1.482	0.281
	Reaching the destination on time	3.699	74%	0.711	0.307
	Average	3.776	76%	0.581	0.370
Price Affordability	Acceptable Price	3.098	62%	1.072	0.015
	Difficulty in price negotiation	2.888	58%	1.727	-0.224
	Average	2.993	60%	0.659	-0.171
Car Condition	Importance of car model	3.155	63%	1.635	-0.004
	Importance of car inside and cleanliness	4.647	93%	0.572	0.069
	Average	3.901	78%	0.679	0.028

* Correlation between the factor and the general customer satisfaction.

Source: Compiled and computed by the researcher on the basis of questionnaire

Table 2

The correlation values of the variables used

	General satisfaction	App	Driver	Time	Price	Car
General satisfaction	1	0.471	0.301	0.37	-0.171	0.028
App	0.471	1	0.422	0.444	-0.116	0.026
Driver	0.301	0.422	1	0.448	-0.239	-0.039
Time	0.37	0.444	0.448	1	-0.061	0.078
Price	-0.171	-0.116	-0.239	-0.061	1	0.077
Car	0.028	0.026	-0.039	0.078	0.077	1

Source: Compiled and computed by the researcher on the basis of questionnaire

The table shows the correlation among these variables using Pearson correlation coefficient. There is slightly positive correlation in mobile app convenience, driver behavior and time reliability among them and with the general customer satisfaction

Table 3

Regression Results
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.519 ^a	0.269	0.260	0.286	0.269	30.375	5	413	0.000

a. Predictors: (Constant), Car, App, Price, Time, Driver

ANOVA^b

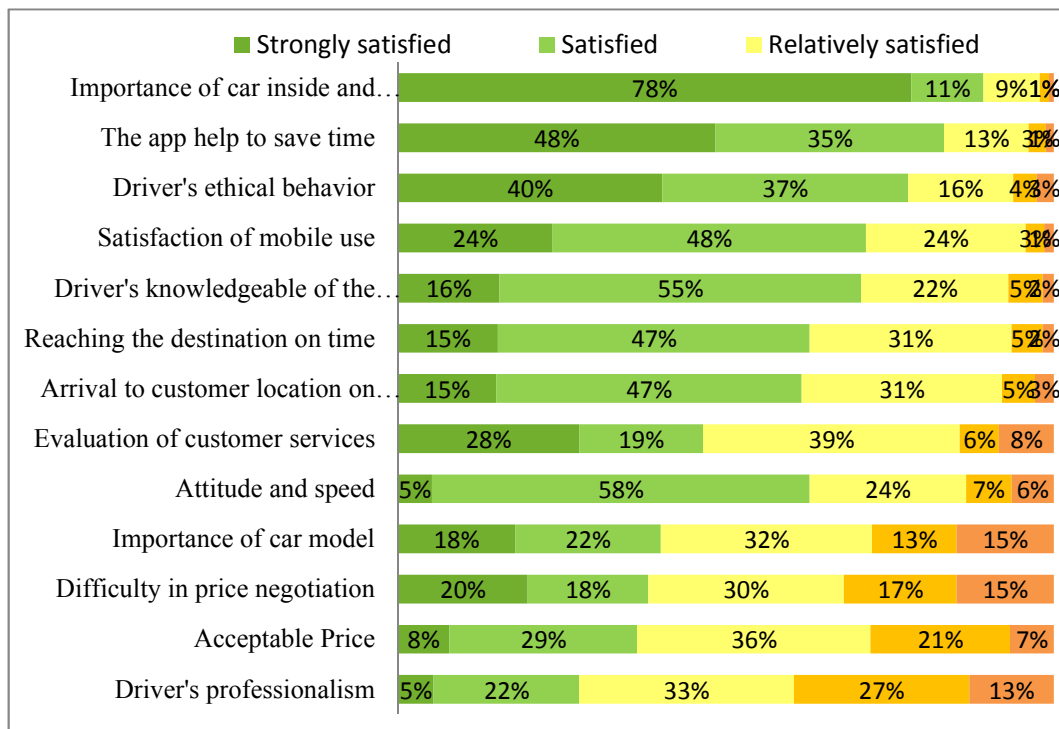
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.447	5	2.489	30.375	0.000 ^a
	Residual	33.849	413	0.082		
	Total	46.296	418			

a. Predictors: (Constant), Car, App, Price, Time, Driver

b. Dependent Variable: General satisfaction

**Source: Compiled and computed by the researcher on the basis of questionnaire

Figure 1



The figure shows the respondent evaluation of the different items in the service quality.

Multiple Regression Analysis

Multiple regression analysis is used to check whether there are significant relationships among the different variables. It has been performed using one dependent variable (Customer Satisfaction) and five independent variables (service quality factors) namely Mobile App Convenience, Driver Attitude, Time Reliability, Price Affordability and Car Condition by running the multiple regression analysis using PASW Statistics and Microsoft Excel, we had the following results.

Coefficients^a

Model	Unstandardized Coefficients		Std Coeff.s	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.096	.135		8.097	.000
App	.133	.018	.358	7.318	.000
Driver	.024	.029	.042	.830	.407
Time	.081	.022	.185	3.709	.000
Price	-.045	.018	-.110	-2.520	.012
Car	.006	.017	.015	.345	.730

a. Dependent Variable: General satisfaction

The model predicts the following equation to measure the customer satisfaction:

$$CS = 1.096 + 0.133 A + 0.024 D + 0.081 T - 0.045 P + 0.006 C + e$$

Where:

- CS: Customer Satisfaction
- A: Mobile App Convenience
- D: Driver Behavior
- T: Time Reliability
- P: Price affordability
- C: Car Condition
- e: Error Term

In the regression results, the indicator of the goodness of fit "R square" is equal to 0.269 which tells that 26.9% of the effects on the customer satisfaction are attributed to the service quality factors mentioned in PCADT model.

The significance value of F-Statistic is 0.0000 which is very much below 0.05. So, the regression model

expresses the goodness of fit and as a result the regression is significant.

Generally the null hypothesis is formulated as if there is no significant difference between the two variables and the alternative hypothesis is that there is a significant difference between the variables.

The multiple regression result between the five independent variables and the dependent variable, show a positive beta coefficient score for four independent variables (Mobile App Convenience, Driver Attitude, Time Reliability and Car Condition). Price Affordability however scored a negative beta coefficient. The above results lead to the acceptance of three hypotheses and the rejection of two hypotheses. The results of the hypotheses test are detailed in the following:

H1: Mobile app convenience as perceived by the customer has a positive and significant impact on customer satisfaction:

Null Hypothesis:	H1 ₀ :	$\beta_1 = 0$
Alternative Hypothesis	H1 _a :	$\beta_1 \neq 0$
T statistic	t =	7.3
p-Value	p =	0.000000000001 p < .05
Conclusion		Reject the null hypothesis and accept the alternative

Mobile app convenience factor is significantly different from zero thus is important in the model. As seen in the regression results summary, p-value for mobile app convenience parameter estimate is 0.000000000001, the means that the probability that “the App parameter equals zero” is almost zero. So the app parameter estimate in the model is statistically significant. The regression results, for App parameter, support the correlation result. The features provided by online booking applications have a strong impact on the high customer satisfaction. Using apps, a customer needs to tap a button to get a ride, choose the preferred payment method, rate the driver, raise complain to customer services and select the suitable car model and size. The mobile apps give the customers the flexibility and trust that they look for. Taxi services using the app become available all the day, twenty-four hours a day, and seven days a week

H2: Driver behavior as perceived by the customer has a positive and significant impact on customer satisfaction:

Null Hypothesis:	H2 ₀ :	$\beta_2 = 0$
Alternative Hypothesis	H2 _a :	$\beta_2 \neq 0$
T statistic	t =	0.83
p-Value	p =	0.407 p > .05
Conclusion		Accept the null hypothesis and reject the alternative

Driver behavior factor is not significantly different from zero thus is not important in the model.

Mentioned earlier in the correlation analysis, that “Driver Behavior” variable shows a very weak correlation with general customer satisfaction.

H3: Time reliability as perceived by the customer has a positive and significant impact on customer satisfaction.

Null Hypothesis:	H3 ₀ :	$\beta_3 = 0$
Alternative Hypothesis	H3 _a :	$\beta_3 \neq 0$
T statistic	t =	3.709
p-Value	p =	0.0002 p < .05

Conclusion

Reject the null hypothesis and accept the alternative

Time reliability factor is significantly different from zero thus is important in the model.

Focusing on the time factor, customer feel satisfied when using the app. The customers do not have to wait for a taxi for long times. It helps them to save time and arrive to the targeted destination on time.

H4: Price affordability as perceived by the customer has a positive and significant impact on customer satisfaction.

Null Hypothesis:	H4 ₀ :	$\beta_4 = 0$
Alternative Hypothesis	H4 _a :	$\beta_4 \neq 0$
T statistic	t =	-2.520
p-Value	p =	0.012 p < .05
Conclusion		Reject the null hypothesis and accept the alternative

Price affordability factor is significantly different from zero thus is important in the model. In essence, customers seek affordable price whenever they use taxis. They feel satisfied when taxi services provide reasonable taxi fare. Customers rely on and accept the system calculation of taxi trip cost based on predefined formula.

H5: Car condition as perceived by the customer has a positive and significant impact on customer satisfaction.

Null Hypothesis:	H5 ₀ :	$\beta_5 = 0$	
Alternative Hypothesis	H5 _a :	$\beta_5 \neq 0$	
T statistic	t =	0.345	
p-Value	p =	0.730	p > .05
Conclusion			

Accept the null hypothesis and reject the alternative Car Condition factor is not significantly different from zero thus is not important in the model.

Failure to reject the null hypothesis, for Driver Behavior and Car Condition, should not suggest that we cannot draw meaningful conclusions or that the research is without value. A bias in the selected sample could be one reason. The questions related to the factors need to be redesigned in a way to reflect the real relation with the main objectives. For example, in car condition factor, the question “importance of car inside and cleanliness” is a general question, which does not give the respondent a link to their satisfaction feeling. In other word, people might care about the car cleanliness even if they are not satisfied. A question might be rephrased to be “Are you satisfied with car inside and cleanliness when use a taxi?”

8. Research Findings and Results

Those Customers who use the modern taxi services through mobile apps were found to be the most satisfied (92%), for the traditional taxi services the satisfaction level was 73%. It is clear that traditional taxi services are not satisfactory due to high handedness of drivers. However, the overall average of taxi customer satisfaction reached at 87.4%. As a good number of the families in Saudi Arabia own one car or more, due to their income level and the low price of fuel in the country the consumption of taxi service is rare. According to an estimate there are around 336 vehicles per 1000 people in Saudi Arabia (nationmaster.com 2014 estimate). Only 26% of Men use taxi services at least once a month. However, the women show a good segment of taxi customers, due to the law prohibiting women from driving in the country. Forty five point five percent of women use the taxi services at least once a month (19.4% twice or more per week, 14.7% once a week and 10.5% once a month). The study finds a significant impact of service quality factors (Mobile App Convenience, Driver Attitude, Time Reliability, Price Affordability and Car Condition) on the overall taxi customer satisfaction. Three of these factors indicated the impact on customer satisfaction in both correlation and regression analysis. Mobile App Convenience and Time Reliability left a positive impact on customer satisfaction, while Price Affordability showed a negative impact. The highest scores were gained by “Importance of car inside and cleanliness” (93%) and then “The app helped to save time” (85%). “Driver's ethical behavior” got (82%). The study found that Uber and Careem taxis are very preferred services among respondents (32% and 27% respectively). Preference for Easy taxi reached at (17%) and for the others it was (24%). Women rated Careem, as the highest of all other taxi services (37% for women vs 18% for men). Modern taxi services have an advantage over traditional taxi services in terms of security, convenience, efficiency thank to mobile apps, and flexible payment methods. These factors enhance the significance of modern app based taxi services. The general customer satisfaction level is 87%, the female satisfaction reached at about 93% while male satisfaction is simply (82%). The average waiting time for a taxi to arrive to a passenger was found to be 12.5 minutes. The mobile applications clearly help in saving time and make better passenger-driver communication. What is interesting is that the majority of taxi passengers wanted to get to their destination smoothly in an affordable price rather than concerning themselves with the luxuriousness of cars.

Factors such as car ownership – private or not did not matter for the passengers. More than 50% of the respondents were concerned about drivers’ behavior and car condition. The study finds that the male demand for taxi service was in an average of 18 days per year while for the female it was 51 days per year. These numbers suggest women are more in need of taxi services than men because of restriction on their driving in Saudi Arabia. According to the study Riyadh may expect 360,000 taxi trips per day while 55% of the services are required in the peak hours in the evening (140,000 trips).

9. Conclusions, Implications and Recommendations

A good number of customers have been found to be satisfied with the modern taxi service system. Factors such as mobile application usage, time reliability and price affordability have a positive effect on customer satisfaction. Car condition, driver attitude, pricing, and regulation and flexible payment methods also add to the positive impact app based taxi services have on customers.

The most important finding of the research paper is the difference in level of customer satisfaction between traditional and modern taxi services. In the area it is desirable that some more studies be conducted to conclusively assess customer’s needs and requirements. Usually drivers drive a taxi only when a customer makes a mobile request. The helps in reducing traffic, accidents, air pollution and fuel consumption. There are

considerations to be kept in mind for future study of the kind. The model proposed in the study can be used with some modifications. Some sub-items in each service quality factors can be assessed and redesigned to match the main objectives of the study. Better sampling techniques are also to be required for a future study to avoid any bias. Also, the number of questioned to asked in a questionnaire can be reduced to avoid the problem of incomplete questionnaires. The study mainly confined itself to Riyadh only. However, its results and conclusions can be applied profitably to Saudi Arabia as a whole or other such Middle Eastern countries which are undergoing similar changes in the area of taxi services.

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