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RESEARCH ARTICLE

INVESTIGATING THE DETERMINANTS OF CUSTOMER SATISFACTION IN TAXI SERVICES: A COMPREHENSIVE ANALYSIS OF CUSTOMER SERVICE QUALITY, DRIVER BEHAVIOUR, PRICE FAIRNESS, STAKEHOLDER ENGAGEMENT, AND TIME RELIABILITY

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ABSTRACT - Ensuring high service quality in the taxi service sector is critical for achieving customer satisfaction, which is a serious metric for organisational success and longevity. This study examines the levels of customer experience and satisfaction towards the app-based taxi service in Iraq. A questionnaire was distributed to 223 participants to assess their level of customer satisfaction in terms of driver behaviour, price fairness, time reliability, and stakeholders, and the mediating role played by customer service in the relationship. Smart PLS was used to analyse the data. The results revealed that all four variables have a considerable influence on consumer satisfaction. Customer satisfaction is positively influenced by time reliability and stakeholder performance but negatively impacted by driver behaviour and price fairness. These variables subsequently have a large effect on customer service as the mediating variable. The findings highlight the significance of these aspects in improving the overall quality of taxi services and customer satisfaction in Iraq.

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1. INTRODUCTION

App-based ride-hailing services have transformed transportation in Iraq, offering efficient and accessible mobility solutions through internet platforms and mobile applications. Ride-hailing businesses like Uber, Careem, and Baly Taxi have significantly transformed the ease of access to taxi services by providing 24/7 availability and convenient booking options (Zhang et al., 2020). In countries like Iraq, where access to public transport may be limited, app-based taxis serve a crucial function in meeting the mobility needs of both residents and visitors. The intense competition among Iraqi cab service companies has led to a focus on improving service quality to increase customer satisfaction and evaluate the level of satisfaction with local taxi services. This includes paying particular attention to driver behaviour, fair pricing, punctuality, and involving relevant stakeholders (Abood, 2022). To maintain a competitive edge in the market, taxi companies in Iraq can adapt their services to meet customers' evolving demands by understanding the impact of these factors on customer satisfaction, which is conveyed through customer service. The interdependence of these aspects underscores the importance of adopting a holistic strategy to improve service quality in the highly competitive taxi service market.

This study aims to evaluate the quality of service offered by Iraq's transportation services operating through mobile applications. It emphasises the critical aspects of service quality, namely the functionality of mobile applications, driver's behaviour, impartiality of pricing fairness, time reliability, and customer service quality. The main objectives are to evaluate the impact of driver behaviour on service quality, examine the functionality of these mobile applications on customer satisfaction, and investigate the price fairness strategies employed by these services. Furthermore, this study evaluates the efficacy of customer satisfaction in resolving issues and the time reliability of service. It also suggests strategies for transport authorities to improve regulatory supervision with a particular emphasis on safeguarding customer services, ensuring equitable pricing, enhancing traffic management, and addressing stakeholders' complaints. The findings hope to gain insights into the operational and regulatory obstacles encountered by transportation services operating through mobile applications. The framework aims to improve driver behaviour, ensure equitable pricing, increase timeliness, engage all essential stakeholders, and enhance customer satisfaction. This will provide a better understanding of the interaction between these components in taxi applications.

2. LITERATURE REVIEW

2.1 Customer Service

Kalantarzadeh Tezerjany (2024) emphasises the strong connection between consumer happiness and high-quality service, which is critical to the development of customer satisfaction in the Iraqi transportation industry. Al-Haj and Darwish (2024) also note how satisfied customers are significantly affected by customer service quality alongside factors like reliability, consistent service access, security, ease of use, affordability, and driver behaviour. A positive consumer

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experience is dependent on the implementation of these service components. This is supported by Siam et al. (2022) who reported that shared transportation users in Iraq appreciate the affordability and convenience of payment methods as essential components of customer service. Naidoo (2023) also emphasises the importance of operator communication that is both timely and friendly, as well as other factors like driver behaviour and price fairness as significant contributors to the overall quality of service. In the Iraqi context, customer service experiences are improved by convenience and accessibility, which includes simple booking and drop-off services. According to Sajid et al. (2018), Uber's success in sustaining high levels of customer satisfaction is attributed to the efficiency of their mobile app and affordable service costs. However, challenges such as inadequate insurance continue to exist as a service gap. These studies collectively emphasise that the overall quality of client service in Iraq's taxi services is influenced by many factors, including price, reliability, communication, and technology.

2.2 Customer Satisfaction

Consumer satisfaction is a multifaceted concept that assesses the extent to which a company's products and services adhere to customers' expectations. The intense competition in the Iraqi taxi industry has enabled consumers to become more informed and critical about their choices, with factors like driver behaviour, pricing fairness, reliability, and stakeholder influence significantly affecting consumer satisfaction towards the local app-based taxi services. In this context, the difference between customers' expectations and perceptions of service are central to customer service quality (Massoudi, 2020). The Iraqi transportation sector is undergoing a significant transformation as ride-hailing services, such as Careem, Baly, and Uber Taxi, disrupt traditional transport methods (Nieberg, 2017). Uber is expected to maintain its dominant position in cities like Erbil, particularly as the passenger car market in Iraq is expected to expand further by 2028.

2.3 Hypothesis Development

2.3.1 Customer Service and Customer Satisfaction

Within the taxi application industry, the importance of providing exceptional customer service has been heightened by the increasing prevalence of ride-hailing applications in recent years, particularly in regions like Erbil, Iraq. Effective customer service has been shown to improve user satisfaction, trust, and loyalty in mobile app-based services. For example, Mariani and Matarazzo (2021) discovered that customer satisfaction is significantly positively correlated with the quality of customer service in the digital services sector, particularly in service-oriented industries. The notion that customer service has a substantial impact on customer satisfaction is supported by previous studies conducted in varied contexts. For instance, Vu et al. (2024) conducted a study on ride-hailing applications and found that customer service components, including effective communication, timely service, and driver behaviour, are critical determinants of customer satisfaction. Farouk (2024) also emphasised the importance of customer service in developing consumer loyalty in the context of mobile applications. The evidence suggests that taxi applications in Erbil will show comparable dynamics and that customer satisfaction in this region can be positively impacted by the provision of prompt, reliable, and efficient customer service. This is supported by Dam (2021) who concluded that customer service positively affects satisfaction. Therefore, the following hypothesis is proposed:

H1: Customer service positively affects customer satisfaction towards taxi applications in Erbil, Iraq.

2.3.2 Driver Behaviour

In the taxi service industry, driver behaviour is a critical factor that significantly impacts consumer satisfaction. Within the context of Iraq where app-based taxi services are gaining popularity, the driver's conduct, including regularity, competence, communication skills, safety practices, and overall quality of service, stands as a crucial factor in the formation of customer perceptions and shaping customer experiences (Park & Hyun, 2021). A positive passenger experience is influenced by various key elements, such as reliability, professionalism, plain communication, respect for traffic laws, and politeness (Song et al., 2024). The importance of drivers upholding high service standards is underscored by the fact that app-based platforms frequently rely on customer feedback and ratings to evaluate driver behaviour. This aligns with Hallencreutz and Parmler (2021) who reported that driver behaviour positively influences customer satisfaction. Eventually, driver training programs and support mechanisms can lead to improved behaviour, which ultimately strengthens customer satisfaction and fosters loyalty in the increasingly competitive taxi service market. According to Singh and Kathuria (2021), customer service is positively impacted by driver behaviour. Therefore, the following hypotheses are proposed:

H2: Driver behaviour positively affects customer satisfaction.

H3: Driver behaviour positively affects customer service.

2.3.3 Price Fairness

In taxi applications, the quality of customer service and customer satisfaction are directly impacted by price fairness. The overall perception of service quality is influenced by factors like stakeholder involvement, vehicle behaviour, time reliability, and fair pricing (Nguyen-Phuoc et al., 2020). Companies can ensure a positive experience with taxi app services by developing strategies that enhance both customer service and satisfaction by understanding how consumers perceive pricing fairness. This agrees with a study by Bernarto and Purwanto (2022) whereby customer satisfaction is

positively influenced by price fairness. Apart from satisfying customer expectations, taxi services can develop loyalty and trust by adhering to transparent and equitable pricing. Alzoubi and Inairat (2020) found that customer service is positively impacted by price parity. Therefore, the following hypotheses are proposed:

H4: Price fairness positively affects customer satisfaction.

H5: Price fairness positively affects customer service.

2.3.4 Time Reliability

Being on time is a critical factor for consumer satisfaction in the taxi service industry as it affects the overall passenger experience. Recent research has verified the significance of punctual service in various contexts, including public transport (Noor et al., 2023), ride-hailing apps (Shobini, 2023), and food delivery services (Massoudi et al., 2023). Taxis are anticipated to arrive on time and adhere to the anticipated schedule, particularly as customers consistently value promptness. Key indicators of reliability include adherence to appointments, precise arrival estimates, and expedient pick-up times. Various advanced technologies, such as real-time updates and GPS tracking, can be employed by app-based taxi services to improve timing and enhance transparency for consumers. Past research deduced that both timeliness and time reliability positively influence consumer satisfaction, loyalty, and trust (Buba et al., 2023), ultimately enhancing overall customer service (Bungatang & Reynel, 2021). Therefore, the following hypotheses are proposed:

H6: Time reliability positively affects customer satisfaction.

H7: Time reliability positively affects customer service.

2.3.5 Stakeholders

The quality of consumer care in taxi applications is significantly influenced by stakeholders. Factors like drivers' professionalism, driving skills, and behaviour are critical to customer satisfaction because they are the primary service providers (Ziyad et al., 2020). Past research denotes that passengers' satisfaction can be significantly improved by courteous and proficient chauffeurs. Furthermore, regulatory authorities play a substantial role in the preservation of safety and service standards, which are essential for the development of consumer trust and loyalty (Nkatha, 2021). The consumer feedback mechanisms integrated into transportation applications serve as invaluable resources for the ongoing enhancement of services, guaranteeing that they satisfy customer expectations. New standards for convenience and reliability in customer service have been established by technological advancements, which are driven by stakeholders' demands for real-time monitoring and cashless payments.

The taxi industry's capacity to adjust its business models to accommodate the diverse needs of stakeholders while taking into account cultural contexts and competitive strategies emphasises the changing nature of service quality (Massoudi & Ahmed, 2021). García-Sánchez (2020) states that transportation companies can substantially improve customer service and satisfaction by comprehending and addressing the diverse requirements of stakeholders. Enhanced communication, optimised operations, and regulatory compliance are the results of engaging effectively with stakeholders, including transporters, regulatory bodies, investors, and customers. Moreover, factors like investments in technology, driver behaviour, adherence to laws, and responsiveness to customer feedback contribute to the quality of the customer experience. A study by Rathore et al. (2023) found that customer satisfaction is positively influenced by stakeholders. High-quality customer service, which is distinguished by professionalism, equitable pricing, punctuality, and effective issue resolution, is the ultimate source of superior customer satisfaction. Meanwhile, Tao et al. (2023) believe that stakeholders have a beneficial impact on customer service. The successful management of stakeholder relationships in taxi applications enables the implementation of driver training programs, transparent pricing models, reliable scheduling, and service advancements, all of which contribute to improved customer experience. Therefore, the following hypotheses are proposed:

H8: Stakeholders positively affect customer satisfaction.

H9: Stakeholders positively affect customer service.

2.3.6 Research Model and Hypothesis Development

Several theoretical frameworks have been created to enhance researchers' comprehension of the variables impacting customer satisfaction in taxi app services (Siyal et al., 2021). These frameworks include driver behaviour, equitable pricing, being on time, quality of customer service, and stakeholder involvement. Figure 1 illustrates the theoretical model of this study. The dependent variable is the overall customer satisfaction with taxi services provided through mobile apps, whereas the independent variables are driver behaviour, price fairness, time reliability, customer service, and stakeholder participation. The model includes all the external variables and their relationship with the internal variable. These parameters were measured using a questionnaire, which was specifically created to focus on taxi customers in Iraq.

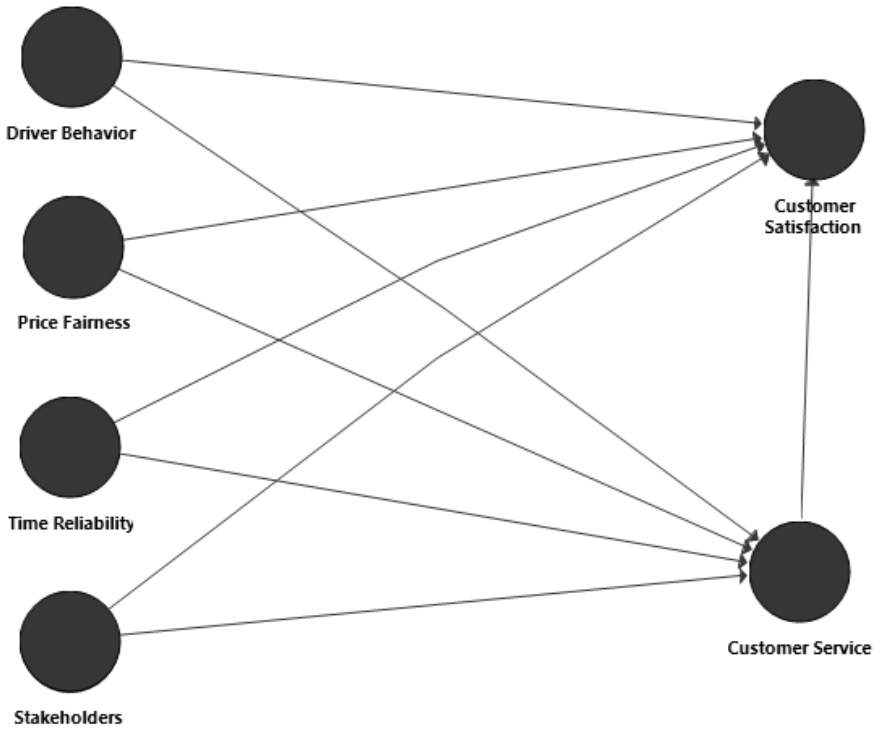

Figure 1. Theoretical model

3. METHODOLOGY

3.1 Research Design

The study employed a deductive approach, which involved testing hypotheses derived from existing theories regarding the impact of driver behaviour, price fairness, time reliability, and stakeholders on customer service and customer satisfaction. The survey method was utilised to collect quantitative data from a representative sample of customers who subscribed to app-based taxi services in Erbil, Kurdistan Region, Iraq. A questionnaire was developed by adapting items from Younus and Zaidan (2022). Finally, Structural Equation Modelling (SEM) was used for data analysis and hypothesis testing purposes.

3.2 Population, Sample, and Sampling Technique

The population of Erbil consists of approximately 1.5 million residents. The sample size of this study was calculated based on Hair et al. (2017), who advocate for a minimum sample size of five times the number of study indicators and employ a 5:1 ratio. The sample size of 223 respondents satisfied the minimum requirements, considering the number of variables analysed in this study while maintaining a balance between practical limitations and statistical reliability. Hair et al. (2017) further assert that an increased number of samples gathered enhances the accuracy and generalisability of the results. Additionally, a random sampling technique was employed to guarantee that each respondent had an equal probability of selection, thus improving the sample's representativeness. A total of 250 questionnaires were distributed, which yielded 223 valid responses and achieved an 89% response rate. The sample size is deemed sufficient to meet the statistical criteria and accurately represents various demographic groups and taxi app users in Erbil, Iraq.

3.3 Data Analysis

The research team in Erbil used quantitative methods to collect the data. Physical copies of the survey were administered to prospective respondents in busy markets, high-traffic areas, and apartment buildings within the city of Erbil. Simple random sampling was employed to select a sample size of 223 respondents, which was determined based on Hair et al. (2017). Finally, the Smart PLS software was used to analyse the data.

3.4 Measurement Scales

A 5-point Likert scale (Strongly Disagree = 5, Disagree = 4, Impartial = 3, Agree = 2, Strongly Agree = 1) was used to assess the degree of effect of all factors identified in the study. The questionnaire was divided into two sections. Section 1 described the respondents' demography (see Table 1), while Section 2 entailed the variables under investigation. In the latter section, the variable of driver behaviour was measured by 3 items adapted from Bobermin et al. (2021), price fairness was measured by 3 items adapted from Hride et al. (2022), time reliability was measured by 3 items adapted from Kaligis et al. (2024), stakeholder was measured by 4 items adapted from Laine et al. (2024), customer satisfaction was measured by 3 items adapted from Evelina et al. (2020), and customer service was measured by 3 items adapted from Rane et al. (2023).

4. RESULTS & DISCUSSION

4.1 Respondents' Demographic Profiles

Table 1 shows the demographic profiles of the respondents, which consist of their age, gender, and work status. Approximately 60.1% of the respondents were employed on a full-time basis, which offers valuable information regarding the economic condition and consistency of the surveyed population. Uber was the most preferred taxi service (70.0%) compared to Careem (14.8%) and Baly Taxi (9.9%). The adoption rate of taxi applications (39.9%) and the frequency of daily usage (25.1%) indicate the level of dependence on and demand for taxi services. This data can be used for precise marketing and service development, with a specific focus on the prominent age range (25–34 years). It is also useful to identify areas of weakness that can be improved and to examine obstacles that hinder regular usage. Companies can monitor changes in consumer preferences and usage patterns over time to remain competitive and adjust their strategy to meet market needs.

Table 1. Sample characteristics

Category	Number	Percentage
Age		
Under 18	22	9.9%
18-24	45	20.2%
25-34	67	30.0%
35-44	45	20.2%
45-54	22	9.9%
55-64	11	4.9%
65 and above	11	4.9%
Gender		
Male	165	73.0%
Female	58	26.0%
Employment		
Employed full-time	134	60.1%
Employed part-time	45	20.2%
Self-employed	22	9.9%
Unemployed	11	4.9%
Student	7	3.1%
Retired	4	1.8%
Others	0	0.0%
Taxi Service		
Uber	156	70.0%
Careem	33	14.8%
Baly Taxi	22	9.9%
Others	11	4.9%
Taxi App Usage		
Daily	56	25.1%
Weekly	89	39.9%
Monthly	45	20.2%
Rarely	22	9.9%
Never	11	4.9%

4.2 Model

The conceptual framework depicts the interplay between numerous components that impact customer service and customer satisfaction, namely driver behaviour (DB), price fairness (PF), time reliability (TR), and stakeholders (STK). Each component has its own set of indicators that demonstrate strong representation, such as DB1, DB2, and DB3, with corresponding values of 0.948, 0.873, and 0.921, respectively. Customer service (CSE) and customer satisfaction (CS) obtained the R^2 scores of 0.493 and 0.732, denoting a substantial amount of explained variance. Indicators with loadings above 0.85 indicate a strong and reliable measurement of constructs. It can be observed that driver behaviour has a significant impact on the perception of service quality, price fairness directly influences the perception of value, time

reliability affects both trust and convenience, while stakeholders play a critical role in determining the overall delivery of service. These elements collectively influence the quality of customer service experience and level of satisfaction.

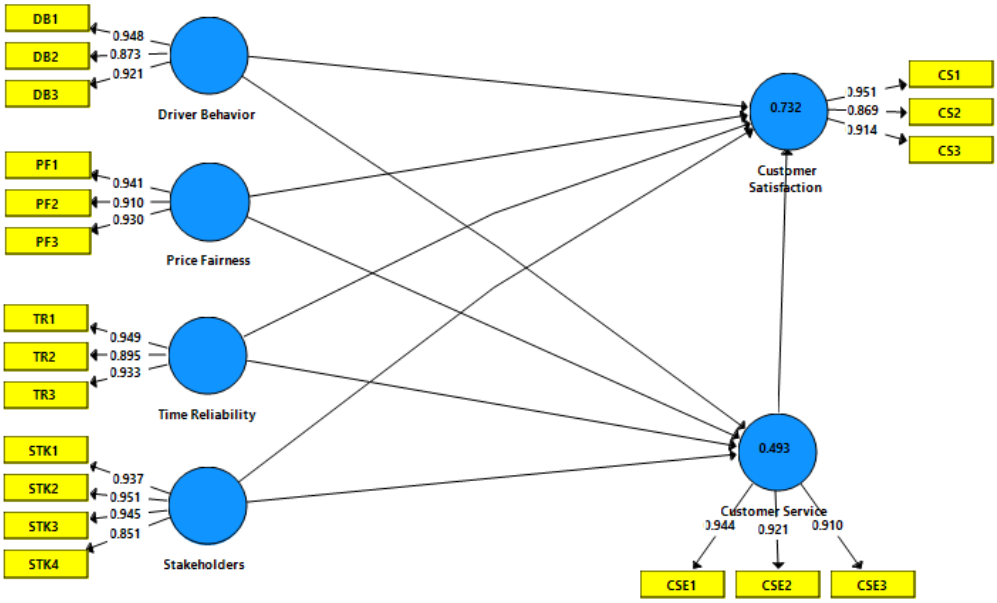

Figure 2. Measurement model

4.3 R^2

The regression analysis of factors influencing business outcomes revealed that customer satisfaction emerged as a significant predictor ($R^2 = 0.732$, adjusted $R^2 = 0.725$), indicating that it explains 73.2% of the variance in the dependent variable. Customer service also showed a notable influence ($R^2 = 0.493$, adjusted $R^2 = 0.484$), explaining 49.3% of the variance. These findings highlight the critical roles of both customer satisfaction and customer service in shaping business performance.

Table 2. Coefficient of determination

Variable	R^2	Adjusted R^2
Customer Satisfaction	0.732	0.725
Customer Service	0.493	0.484

4.4 Construct Reliability and Validity

Table 3 presents the reliability and validity measures of various constructs investigated in the study. The internal consistency of each construct was assessed using Cronbach's alpha. According to Hair et al. (2017), Cronbach's alpha values exceeding the recommended threshold of 0.7 indicate strong reliability. In this study, all constructs demonstrate strong reliability and internal consistency as the Cronbach's alpha values exceed the threshold of 0.7 and range between 0.898 to 0.941. The constructs also reliably capture the underlying constructs as demonstrated by the high composite reliability (rho_A), ranging from 0.905 to 0.960 and surpassing the threshold of 0.7. Moreover, the average variance extracted (AVE) values range between 0.832 to 0.860 and exceed the acceptable threshold of 0.5, indicating good convergent validity. It demonstrates that the constructs explain a substantial amount of variance in their respective items. Overall, the table provides robust evidence of the reliability and validity of the measurement model, hence supporting the study's methodological rigor and the credibility of its findings.

Table 3. Reliability and validity measures of constructs

Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Customer Satisfaction	0.898	0.905	0.937	0.832
Driver Behaviour	0.902	0.911	0.939	0.836
Customer Service	0.916	0.917	0.947	0.856
Time Reliability	0.917	0.919	0.947	0.857
Price Fairness	0.919	0.925	0.948	0.860
Stakeholders	0.941	0.960	0.958	0.850

4.5 Fornell-Larcker Criterion Analysis

The Fornell-Larcker criterion was employed to assess the discriminant validity in structural equation modelling. Discriminant validity is established when the square root of AVE for each construct exceeds the maximum correlation

with any other construct (Hair et al., 2017). The diagonal values in the above table correspond to the square root of AVE for each construct. On the other hand, the off-diagonal values indicate the correlations between the constructs. Each element in the table possesses a diagonal value, which is the square root of AVE, that surpasses the correlation values with other elements in the corresponding row and column. The constructs encompassed in this list are customer happiness, customer service, driver behaviour, price fairness, stakeholders, and time reliability. As denoted by the Fornell-Larcker criterion (Hair et al., 2017), such results indicate that each construct has a higher degree of shared variance with its indicators compared to other constructs. This demonstrates that the constructs have discriminant characteristics.

Table 4. Fornell-Larcker criterion analysis

	Customer Satisfaction	Customer Service	Driver Behaviour	Price Fairness	Stakeholders	Time Reliability
Customer Satisfaction	0.912					
Customer Service	0.784	0.925				
Driver Behaviour	0.475	0.573	0.914			
Price Fairness	0.436	0.552	0.41	0.927		
Stakeholders	0.259	0.256	0.176	0.196	0.922	
Time Reliability	0.606	0.381	0.332	0.199	0.051	0.926

Figure 2 illustrates the nexus between driver behaviour, price equity, being on time, stakeholders, customer service, and customer satisfaction within the framework of a taxi application. Driver conduct, equitable pricing, timeliness, and stakeholders directly affect the quality of customer service, which subsequently determines customer satisfaction. The values represent the magnitude and importance of these associations, with T-numbers and P-values indicating statistical significance. Price fairness has a substantial influence on customer satisfaction (T-value: 0.369, P-value: 0.000) and customer service (T-value: 0.346, P-value: 0.000). The substantial R^2 values for customer satisfaction (0.732) and customer service (0.493) indicate that the model successfully accounts for the variability in these outcomes, emphasising the significance of these aspects in influencing overall customer experiences and level of satisfaction.

4.6 Hypothesis Testing

The hypothesis testing and beta coefficients show multiple significant associations within the fields of customer service and satisfaction, aligning with previous studies. H1 demonstrates that customer service has a positive impact on customer satisfaction ($\beta = 0.634$). Previous research strongly supports this finding, whereby enhancing service quality leads to a higher level of customer satisfaction.

Table 5. Hypothesis testing

No.	Hypothesis	Beta Coefficient	Supported	Justification
H1	Customer service positively affects customer satisfaction	0.634	Yes	A strong positive relationship indicating that better customer service leads to higher customer satisfaction.
H2	Driver behaviour positively affects customer service	0.346	Yes	The significant positive impact of driver behaviour on the quality of customer service.
H3	Driver behaviour positively affects customer satisfaction	-0.028	No	The data shows a negative relationship, indicating that driver behaviour does not significantly contribute to customer satisfaction.
H4	Price fairness positively affects customer service	0.349	Yes	Fair pricing practices contribute positively to the perceived quality of customer service.
H5	Price fairness positively affects customer satisfaction	0.009	No	The minimal beta coefficient indicates that price fairness has a negligible impact on customer satisfaction.
H6	Time reliability positively affects customer service	0.190	Yes	Timeliness and reliability in service contribute positively to customer service.
H7	Time reliability positively affects customer satisfaction	0.369	Yes	Reliable and timely service significantly enhances customer satisfaction.
H8	Stakeholders positively affect customer service	0.117	Yes	Stakeholder engagement has a positive, though modest, effect on customer service quality.
H9	Stakeholders positively affect customer satisfaction	0.081	Yes	The involvement of stakeholders has a positive impact on customer satisfaction.

H2 suggests that driver behaviour has a positive impact on customer service with a beta coefficient (β) of 0.346. This emphasises the significance of staff behaviour in the delivery of services, in which kind and professional taxi drivers can enhance the level of client service during the ride. On the other hand, H3 denotes that driver behaviour has no substantial

impact on customer satisfaction (β = -0.028). Nevertheless, H4 demonstrates a favourable influence on customer service (β = 0.349), which is consistent with previous research indicating that fair pricing policies improve perceptions of service quality. However, H5 has a negligible effect on satisfaction (β = 0.009), indicating that although customers value fair prices, they are not the sole determinant of total contentment. For instance, integrating feedback from passengers can enhance taxi services. Both H6 and H7 highlight the importance of time reliability, with H6 suggesting that it has a positive influence on customer service (β = 0.190) and H7 indicating a significant impact on satisfaction (β = 0.369). These findings emphasise the critical role of timely and reliable service in ensuring customer satisfaction. Punctuality in public transit is highly valued as it significantly improves clients' overall experience and happiness. The variables in H8 and H9 focus on stakeholder engagement, whereby H8 has a small positive impact on customer service (β = 0.117) and H9 has a similar effect on customer satisfaction (β = 0.081). These findings are supported by previous research on the stakeholder theory, which suggests that involving stakeholders in decision-making can improve service outcomes.

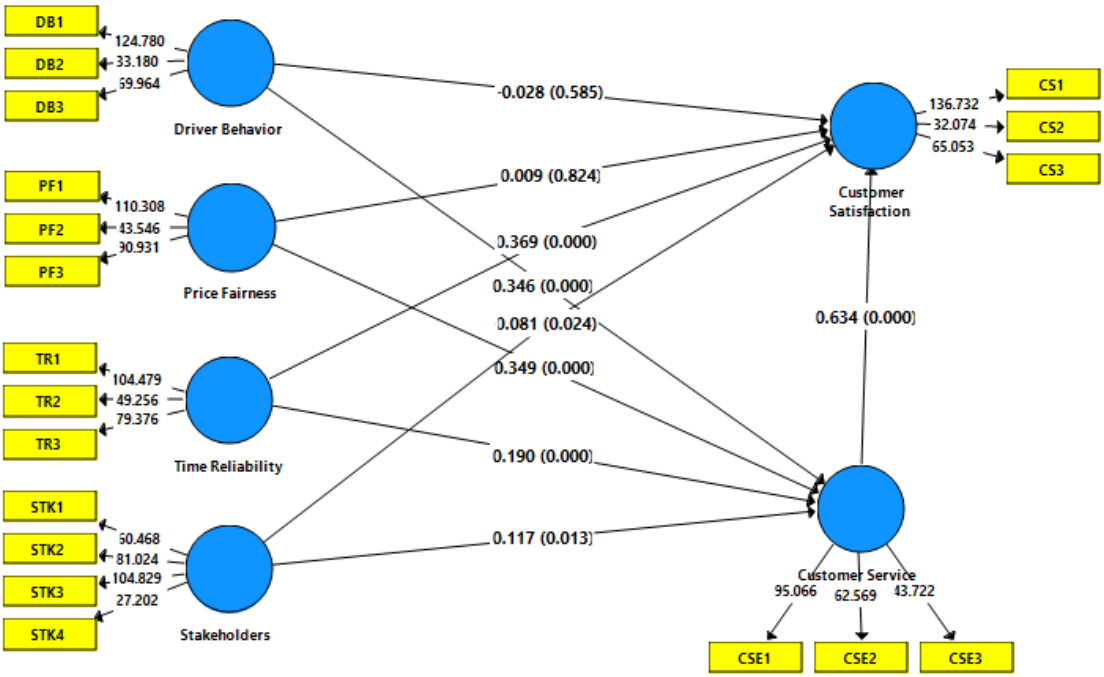

Figure 3. Structural model

4.7 Discussion

This study tested nine hypotheses using a structural equation model to determine the factors influencing customer satisfaction and customer service in mobile app-based taxi services. The results suggest a significant relationship between the quality of service and overall satisfaction levels, as customer service significantly influences customer satisfaction (β = 0.634, p = 0.000). The finding is consistent with Dam (2021) who observed a similar result in various service sectors, ultimately suggesting that providing excellent customer service is necessary for all businesses to keep their customers happy. It also corroborates the idea that taxi services must prioritise service quality to improve user satisfaction. Singh and Kathuria (2021) emphasised that a driver's professionalism directly influences perceived service quality, with driver behaviour having a positive impact on customer service (β = 0.346, p = 0.000). This underscores the fact that the quality of service in the taxi industry is significantly influenced by consumer interactions with drivers.

Nevertheless, customer satisfaction was not substantially impacted by driver behaviour (β = -0.028, p = 0.585). It contrasts Hallencreutz and Parmler's (2021) findings whereby driver behaviour impacts satisfaction in other service contexts. This suggests that when people use mobile apps for taxi services, they may care more about aspects like the simplicity and ease of use or the timeliness of the service rather than how the driver acts. The finding shows that customers who use technology-driven services may have different expectations, where operational efficiency may be more important than human interaction. Furthermore, customer service was positively impacted by price fairness (β = 0.349, p = 0.000). This is consistent with Alzoubi and Inairat (2020) who observed that consumers' perceived pricing fairness enhances their overall service experience. Simple and fair pricing can help people trust mobile transport apps by making the service appear more trustworthy. Nevertheless, Bernarto and Purwanto (2022) discovered a more robust correlation between price fairness and customer satisfaction in other industries, whereas price fairness had a negligible effect on customer satisfaction (β = 0.009, p = 0.824). This discrepancy may suggest that consumers prioritise factors like convenience and reliability over pricing for mobile taxi services, provided that the costs are perceived as reasonable.

Customer service (β = 0.190, p = 0.000) and customer satisfaction (β = 0.369, p = 0.000) were both positively influenced by time reliability. This is consistent with the assertions of Bungatang and Reynel (2021) and Noor et al. (2023) who underscored the significance of punctuality in the improvement of service quality and the enhancement of

customer satisfaction. When it comes to mobile app-based car services, being on time has a big impact on the overall experience and is a key factor in how satisfied and pleased customers are with the service. This underscores the importance of dependable scheduling and timely departures. These results indicate that time reliability may be one of the most critical components in the transportation industry for managing consumer expectations. Additionally, customer service (β = 0.117, p = 0.013) and customer satisfaction (β = 0.081, p = 0.024) were both positively impacted by stakeholder engagement. This result is corroborated by the findings of Tao et al. (2023) and Rathore et al. (2023) whereby service quality and user contentment are improved by stakeholders' active involvement, including app developers, drivers, and regulators. In the context of taxi services, both the service providers and the customers can achieve improved outcomes by ensuring that all stakeholders contribute to the improvement of the service. This suggests that stakeholder engagement is indispensable for the development of a comprehensive strategy to enhance user experience.

This study underscores the significance of stakeholder engagement, high-quality customer service, and service reliability in app-based transport services. It also implies that the degree of influence of factors such as price parity and driver behaviour may vary depending on the specific context of service delivery. Although satisfaction may not be directly influenced by pricing fairness and driver behaviour in this instance, they are still significant elements of the overall service experience, particularly in terms of influencing perceptions of service quality. The results of this study agree with previous research, which advocates the importance of good customer service and being on time to make customers happier with mobile app-based car services. Other research also denotes the supporting roles played by fair prices and stakeholders' involvement, though their direct effect on happiness seems to be less important in this case. Different findings about how drivers behave show that in app-based services, operational efficiency may be more important than human interactions. This opens new ways to think about how technological interfaces affect what customers expect and how they experience it. Additionally, the study provides a comprehensive understanding of operations and identifies crucial areas for service enhancement in the evolving landscape of mobile-based transportation.

5. CONCLUSION

Many Iraqis are happy with the current taxi service system. Our findings revealed that customer service in the app-based taxi industry can be improved by driver behaviour, fairness of prices, reliable timing, and integration with stakeholders. However, the influence of price fairness and driver behaviour on global customer satisfaction is weak. Such discovery underscores the importance of maintaining transparency and pricing equity in cultivating enhancements to service quality perceptions while performing on other criteria to directly address overall customer satisfaction. In this study, a revelation different from actuality was found in the impact on customer satisfaction and service quality. More research is needed to accurately determine what consumers want and need. Traditionally, taxi drivers leave their cars waiting until a customer from an ordering mobile application arrives. This will help reduce traffic jams, road accidents, pollution, and fuel consumption. Our results have implications for further research and should be considered along with other variables. An analysis of service quality at the level of its sub-components will also help to reposition and refine drill-down areas within each aspect to better suit the core objectives of a study. Future research can adopt different approaches for better sampling that may reduce the biases (Rayle et al., 2016). Additionally, the questionnaire could be shortened with fewer questions to lower the chances of partial responses. While this research was conducted in Iraq, its results and inferred solutions can help address the transitioning taxi industry landscape in other Middle Eastern countries.

5.1 Research Limitations

This study has several limitations that are worth highlighting. First, the face-to-face distribution of survey might have introduced interviewer bias while limiting the sample to individuals who were functionally available. This method was also problematic as it ignored those who were not reached or did not wish to partake in person. Second, the study focused on a narrow geographical area in Erbil and might not be representative of the Iraqi context at large. While the sample size was deemed adequate, it might not capture the true diversity of the entire population in addition to the issue of distribution within a limited time. Third, the survey was only offered in Arabic, Kurdish, and English, which might overlook prospective respondents who speak other languages. Any incomplete surveys might directly affect the overall quality of data. Finally, the use of cross-sectional data in this study did not allow the longitudinal investigation of consumer happiness and service quality. Future research may consider these limitations for further improvement.

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AVAILABILITY OF DATA AND MATERIALS

The data is available upon request from the corresponding author.

AUTHORS CONTRIBUTION

The author contributed to all work.

CONFLICT OF INTEREST

The author declares no conflicts of interest.

ETHICS STATEMENT

This research was conducted in accordance with ethical standards.

REFERENCES

Abood, T. L. S. (2022). The reality of the participatory economy in Iraq (benefits and constraints) A case study of participatory transportation (Taxi Karim). Economic and Administrative Studies Journal, 1(3), 24-39.

Al-haj, E., Alamoush, S., & Darwish, M. M. (2024). Service quality of Amman BRT based on user's perceptions: A structural equation modeling approach. KSCE Journal of Civil Engineering, 1-14.

Alzoubi, H. M., & Inairat, M. (2020). Do perceived service value, quality, price fairness and service recovery shape customer satisfaction and delight? A practical study in the service telecommunication context. Uncertain Supply Chain Management, 8(3), 579-588.

Bernarto, I., Purwanto, A., & Masman, R. R. (2022). The effect of perceived risk, brand image and perceived price fairness on customer satisfaction. Jurnal Manajemen, 26(1), 35-50.

Bobermin, M., Ferreira, S., & de Campos, C. I. (2021). New version of driver behaviour questionnaire to investigate driver behaviour on rural roads. In 35° Congresso de Pesquisa e Ensino Em Transporte Da ANPET (pp. 2241-2252).

Buba, N., Baba, A. M., & Zailani, A. (2024). Does customer satisfaction mediate the relationship between service quality and customer loyalty in public bus transport? Evidence from government-owned public bus transport in North-Eastern Nigeria. Journal of Management Science and Career Development. 213-238.

Bungatang, B., & Reynel, R. (2021). The effect of service quality elements on customer satisfaction. Golden Ratio of Marketing and Applied Psychology of Business, 1(2), 107-118.

Dam, S. M., & Dam, T. C. (2021). Relationships between service quality, brand image, customer satisfaction, and customer loyalty. The Journal of Asian Finance, Economics and Business, 8(3), 585-593.

Evelina, T. Y., Kusumawati, A., & Nimran, U. (2020). The influence of utilitarian value, hedonic value, social value, and perceived risk on customer satisfaction: survey of e-commerce customers in Indonesia. Business: Theory and Practice, 21(2), 613-622.

Farouk, M. (2024). Customer decision-making factors for taxi booking apps: A comparative analysis of Uber, Careem, and Bolt in Qassim City, Saudi Arabia. International Journal of Innovative Technology and Interdisciplinary Sciences, 7(2), 51-67.

García-Sánchez, I. M. (2020). Drivers of the CSR report assurance quality: Credibility and consistency for stakeholder engagement. Corporate Social Responsibility and Environmental Management, 27(6), 2530-2547.

Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated guidelines on which method to use. International Journal of Multivariate Data Analysis, 1(2), 107-123.

Hallencreutz, J., & Parmler, J. (2021). Important drivers for customer satisfaction–from product focus to image and service quality. Total Quality Management & Business Excellence, 32(5-6), 501-510.

Hride, F. T., Ferdousi, F., & Jasimuddin, S. M. (2022). Linking perceived price fairness, customer satisfaction, trust, and loyalty: A structural equation modeling of Facebook-based e-commerce in Bangladesh. Global Business and Organizational Excellence, 41(3), 41-54.

Kalantarzadeh Tezerjany, S. F. (2024). Appraise the role of novelty-seeking on consumers' satisfaction using online food delivery applications. International Journal of Quality & Reliability Management, 41(4), 1142-1164.

Kaligis, J. N., Satmoko, N. D., Tahapary, G. H., Tawil, M. R., & Kusnadi, I. H. (2024). The effect of timely delivery on customer satisfaction with service quality as a moderating variable. Innovative: Journal of Social Science Research, 4(2), 4484-4493.

Laine, J., Minkkinen, M., & Mäntymäki, M. (2024). Ethics-based AI auditing: A systematic literature review on conceptualizations of ethical principles and knowledge contributions to stakeholders. Information & Management, 103969.

Mariani, M. M., & Matarazzo, M. (2021). Does cultural distance affect online review ratings? Measuring international customers' satisfaction with services leveraging digital platforms and big data. Journal of Management and Governance, 25(4), 1057-1078.

Massoudi, A. (2020). Consumer loyalty indicator as drivers to satisfaction. Cihan University-Erbil Journal of Humanities and Social Sciences, 4(1), 41-45.

Massoudi, A. H. & Fatah, S. J. (2024). Deceptive point-of-sale marketing tactics impact on consumer purchase intentions with an attitude as a mediator. Inquietud Empresarial, 1-23.

Massoudi, A. H., & Ahmed, M. E. (2021). The adoption of blue ocean strategy to sustain competitive advantage in the Syrian food industry. UKH Journal of Social Sciences, 5(2), 34-49.

Massoudi, A. H., Birdawod, H. Q., & Raewf, M. B. (2023). Personal digital marketing influence on successful marketing campaign in today's digital age. Cihan University-Erbil Journal of Humanities and Social Sciences, 7(1), 158-165.

Naidoo, A. (2023). Customer perceptions of quality service delivery within the department of Financial Aid at a University of Technology (Doctoral dissertation).

Nguyen-Phuoc, D. Q., Su, D. N., Tran, P. T. K., Le, D. T. T., & Johnson, L. W. (2020). Factors influencing customer's loyalty towards ride-hailing taxi services–A case study of Vietnam. Transportation Research Part A: Policy and Practice, 134, 96-112.

Nieberg, H. (2017). Public Transportation in the Middle East: A study on the sustainability and efficacy of taxis in Amman and the future of public transportation. Independent Study Project (ISP) Collection, 1-51.

Nkatha, M. (2021). Service Quality and Customer Retention at Savvy Riders Kenya (Doctoral dissertation, University of Nairobi).

Noor, I., Alhidayatullah, A., & Amal, M. K. (2023). Dimensions of service quality in influencing customer satisfaction. Adpebi International Journal of Multidisciplinary Sciences, 2(2), 189-197.

Park, J., & Hyun, S. S. (2021). Influence of airline cabin crew members' rapport-building behaviors and empathy toward colleagues on team performance, organizational atmosphere, and irregularity. International Journal of Environmental Research and Public Health, 18(12), 6417.

Rane, N. L., Achari, A., & Choudhary, S. P. (2023). Enhancing customer loyalty through quality of service: Effective strategies to improve customer satisfaction, experience, relationship, and engagement. International Research Journal of Modernization in Engineering Technology and Science, 5(5), 427-452.

Rathore, P., Saha, E., Chakraborty, S., & Tiwari, A. K. (2023). Assessing impact of consumer perceived CSR on consumer attitude and purchase behaviour in retail segment: A stakeholder theory perspective. Society and Business Review, 18(2), 264-295.

Rayle, L., Dai, D., Chan, N., Cervero, R., & Shaheen, S. (2016). Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco. Transport Policy, 45, 168-178.

Sajid, A., Ayid, A. M., Majed, A. D., & Faisal, A. M. (2018). Taxi services in saudi arabia through mobile apps: An empirical investigation. Research Journal of Finance and Accounting, 9, 95-104.

Shobini, K. (2023). A study on the consumer preference on online cab booking system project report. (Doctoral dissertation, St Teresa's College (Autonomous), Ernakulam).

Siam, I. M. I., Younus, A. M., Alshuaibi, M. S. I., Zaidan, M. N., & Mohanad, S. S. (2022). Investigating different factors impacting employee performance in irish small and medium-sized enterprises. Res Militaris, 12(3), 3597-3607.

Singh, H., & Kathuria, A. (2021). Analyzing driver behavior under naturalistic driving conditions: A review. Accident Analysis & Prevention, 150, 105908.

Siyal, A. W., Hongzhuan, C., & Gang, C. (2021). From consumer satisfaction to recommendation of mobile app–based services: An overview of mobile taxi booking apps. Sage Open, 11(1), 21582440211004179.

Song, R., Shi, W., Qin, W., Xue, X., & Jin, H. (2024). Exploring passengers' emotions and satisfaction: a comparative analysis of airport and railway station through online reviews. Sustainability, 16(5), 2108-2200.

Tao, R., Wu, J., & Zhao, H. (2023). Do corporate customers prefer socially responsible suppliers? An instrumental stakeholder theory perspective. Journal of Business Ethics, 185(3), 689-712.

Vu, T. D., Nguyen, B. K., Vu, P. T., Nguyen, T. M. N., & Hoang, C. C. (2024). Promoting customer satisfaction and reuse intention using ride-hailing taxi services: role of consumer perceived value, personal innovativeness and corporate image. Asia-Pacific Journal of Business Administration.

Younus, A. M., & Zaidan, M. N. (2022). The influence of quantitative research in business & information technology: An appropriate research methodology philosophical reflection. American Journal of Interdisciplinary Research and Development, 4, 61-79.

Zeithaml, V. A., Verleye, K., Hatak, I., Koller, M., & Zauner, A. (2020). Three decades of customer value research: paradigmatic roots and future research avenues. Journal of Service Research, 23(4), 409-432.

Zhang, W., Le, T. V., Ukkusuri, S. V., & Li, R. (2020). Influencing factors and heterogeneity in ridership of traditional and app-based taxi systems. Transportation, 47, 971-996.

Ziyad, A., Rehman, Z. U., Batool, Z., & Khan, A. H. (2020). Influence of service excellence on consumer satisfaction of ridesharing industry. International Journal for Traffic and Transport Engineering, 10(4), 468-481.