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The journey of service quality to loyalty: a gender-based multigroup analysis in car-hailing service

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Abstract: The study examines the role of car-hailing service (CHS) online and offline service quality on satisfaction and loyalty. Moreover, it examines the impact of satisfaction on trust and its impact on loyalty, and the differences in the perception of males and females. The data was collected through a questionnaire from people who had experience using CHS. PLS-SEM and multigroup analysis (MGA) was used for hypotheses testing. The findings revealed that online and offline service quality both affects satisfaction and loyalty. Moreover, significant relationships were found between satisfaction, trust, and loyalty. The results of MGA showed that offline service quality predominantly affects the satisfaction and loyalty of females. Moreover, trust predominantly affects the loyalty of males in comparison to females. The study offers valuable insights to CHS providers as the findings benefit in developing strategies that help in catering to male and female users.

Keywords: car-hailing; loyalty; sharing economy; mobile app; service quality; trust; satisfaction.

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1 Introduction

The term 'sharing economy (SEC)' refers to "collaborative consumption made by the activities of sharing, exchanging, and rental of resources without owning the goods" (Lessig, 2008). The internet's capabilities have sparked the development of new business models, and the recent social web has enabled a paradigm shift from owning to utilising goods and services. The SEC, in contrast to the traditional market model, is based on the use and sharing of products and services, among others (Puschmann and Alt, 2016). SEC has provided a new way for businesses to reform and get into the new innovative business model (Cheng et al., 2018). Different businesses have adopted to operate in SECs; that is to provide services and goods through the internet, due to the growing trend of the internet (Cohen and Kietzmann, 2014; Cheng et al., 2018).

In SEC, companies need to operate simultaneously in an offline and online setting in order to provide their service, because customer interacts first through a platform that provides general information and allows interaction with the peer service provider, and then with a peer service provider, who actually supplies the services (Marimon et al., 2021). CHS is one example of SEC (Cheng et al., 2018). The idea of CHS is traditional but the growing trend of internet and information technology has given it a new opportunity to rise in the digital SEC (Cohen and Kietzmann, 2014), as intelligent transportation system (ITS) has made it possible to book cars through the mobile phone apps. CHS has been adopted increasingly, instead of waiting for a taxi that is passing by; the consumer can easily book a ride through the car-hailing app (Lim et al., 2018). The traveling mode of people has been changed because of the availability of CHS (Tang et al., 2021) and it becomes critically important for individuals in everyday lives in urban areas (Zheng and Wu, 2017).

In SEC, the businesses try to attract customers online but the customers are served offline (Zheng and Wu, 2017). Similarly, the CHS is divided into two aspects; online and offline services. Few services are carried out online like booking a ride and reviewing the comments of the apps. Few services are carried out offline like when the drivers come and pick up the passengers and take them to their prescribed destination (Cheng et al., 2018). Hence, it is therefore important to maintain good service quality for both offline and online modes (Cheng et al., 2018).

Service quality is the general impression of the consumers about the quality of the services provided by the e-retailers (Kassim and Asiah Abdullah, 2010). It is the level of performance of the services offered to the consumers to cater to customers' needs (Budianto, 2019). As there is intense competition in the market so building a competitive edge is important and service quality is one of the key factors in building a competitive edge (Ennew et al., 1993). Previous studies have discussed the importance of service quality such as service quality in e-commerce (Cox and Dale, 2001), service quality in online shopping (Lee and Lin, 2005), and service quality in food delivery apps (Lee et al., 2017). But, a handful of studies has focused on both; online and offline service perspectives, simultaneously (Cheng et al., 2018; Pearson et al., 2012; Marimon et al., 2021). The market of SEC is quite different from traditional businesses as the offline services are offered by amateurs and the main challenge in shared-driven platforms is that the employees are not always professional (Zervas et al., 2017). Curiosity is considered a key factor for the adoption of the CHS despite having amateurs as offline service providers so one of the important things is to find out what makes consumers loyal to this service (Cheng et al., 2018). There are an increasing number of incidents that are reported due to the lack of security measures that should be taken by the CHS (Harding et al., 2016). The security and safety of the passengers have become a major problem as the drivers are sometimes using their false identities. Some countries even do not provide security measures for the passengers (Gupta et al., 2019). If the consumers are not treated fairly then they may have a negative image in their minds making the consumers dissatisfied and discontinuing using the apps (Griffith et al., 2018) and services. Though satisfaction is the most important factor in a success of a business as it is one of the major goals of marketing (Mahmoud et al., 2018), loyalty is considered a major indicator of success (Cheng et al., 2018; Edvardsson et al., 2000). Past studies have addressed the relationship between service quality, satisfaction, trust, and loyalty but in the context of SEC work is still needed (Eckhardt et al., 2019; Marimon et al., 2021).

In the context of CHS, Hamenda (2018) adopt the SERVQUAL model to analyse service quality and its impact on customer satisfaction. Bismo et al. (2018) have also conducted research to analyse the impact of service quality on customer satisfaction and its impact on loyalty in the context of CHS and identified a significant impact of service quality on customer satisfaction that leads to loyalty. Hence, the majority of the studies have considered the service quality aspect in determining customer satisfaction but have not focused on both perspectives on offline service quality (OF-SQ) and online service quality (ON-SQ). Cheng et al. (2018) identified the factors of OF-SQ and ON-SQ that are useful in the CHS context and suggest to consider trust as that can be an influencing factor in determining loyalty in the context of car-hailing apps. Moreover, Akhmedova et al. (2020) suggest a call for the researchers to consider both perspectives, i.e., ON-SQ and OF-SQ in different geographic settings. Moreover, studies in the past have not examined the differences between males and females in the SEC context.

Considering the above, this research focuses on both perspectives of service quality, i.e., OF-SQ and ON-SQ by considering three elements to assess OF-SQ (information congruity, competence, empathy) and two elements of ON-SQ (structural assurance, platform responsiveness) in the context of CHS in developing economy. The study examines the OF-SQ and ON-SQ's role in customer satisfaction and loyalty. Moreover addresses the role of satisfaction on trust and its impact on loyalty. The study further examined the role of gender in determining perceptions of females and males in the CHS

context. The research benefits the CHS providers in developing effective strategies for improving service quality by focusing on both online and offline perspectives.

2 Theoretical background

Service quality can be defined as the difference between the expectations that a consumer has with regard to a service and the perceived actual performance of the service (Bloemer et al., 1999). In the literature on service marketing, there are different ways of measuring service quality (Gong and Yi, 2018). The instrument which is widely adapted to measure service quality is SERVQUAL introduced by Parasuraman et al. (1988). Countless studies have endorsed the importance of SERVQUAL dimensions. But, Bloemer et al. (1999) argued that service quality is a multi-dimensional concept and some studies argued that service quality dimensions can be different on basis of the situation (Kuo et al., 2009) such as SERVQUAL does not cover the aspects of e-services quality (Jun et al., 2004).

Many studies have employed different dimensions for measuring e-service quality in the context of electronic commerce, such as website design (Hahn et al., 2017), interface interactivity (Ku and Chen, 2015), and information quality (Xu et al., 2013). Other situational variables have been examined in measuring service quality in the process of e-retailing, such as delivery, information accuracy, privacy, ease of use, design, and service failure recovery (Collier and Bienstock, 2006). Extensive work has been done in determining service quality in different contexts, however, the focus was to understand business to customer (B2C) relations.

With the emergence of the SEC perspective, an example of C2C, attempts have been made to assess service quality. Cheng et al. (2018) and Benoit et al. (2017) conceptualised the model to assess service quality for SEC platforms. The two most commonly analysed sectors are transport (Benoit et al., 2017; Möhlmann, 2015; Schaefer et al., 2016) and hospitality (Benoit et al., 2017; Tussyadiah and Pesonen, 2016). In the CHS, the service providers are the registered drivers of the platform, and the business relationship is a customer-to-customer relationship (C2C). Literature highlights that very limited studies considered C2C.

Cheng et al. (2018) proposed dimensions to measure service quality for CHS as it has two aspects of the delivery of the service including online service such as reserving a ride, electronic payment, reviews, etc., and the offline service which starts when drivers pick up the passenger. Hence, they proposed the dimensions separately for OF-SQ and ON-SQ and considered structural assurance and platform responsiveness as ON-SQ dimensions whereas information congruity, competence, and empathy were considered as the OF-SQ dimensions. Following are the definition of the aforementioned dimensions:

- Structural assurance refers to “the belief that structures like guarantees, regulations, promises, legal recourse, or other procedures are in place to guarantee the business process” (McKnight et al., 2002). In CHS, a platform that assures privacy, money, and security such as provides protection of information to the passenger and restricts drivers to call for the purpose of harassment.
- Platform responsiveness refers to “the willingness of platform to help passengers and to provide real-time service such as reach timely on the destination, availability of the ride, etc.”.

- Information congruity refers to “the match of the information provided by the platform, such as the model of car, license number, etc.”.
- Competence refers to the promising service by the entity such as the information of the route.
- Empathy refers to the personality and benevolence of the entity such as caring, kind, etc.

Considering the above, this study addresses the role of OF-SQ and ON-SQ perspectives on customer satisfaction and loyalty in a developing economy. Moreover, this study advances the study of Cheng et al. (2018) by adding the element of trust in determining the loyalty of the customers.

3 Hypotheses development

3.1 Service quality and customer satisfaction

Service quality is the general impression of the consumers about the quality of the services provided by the e-retailers (Kassim and Asiah Abdullah, 2010). It is the level of performance of the services offered to the consumers to cater to the customers' needs (Budianto, 2019). Service quality is a precursor of customer satisfaction (Aslam et al., 2018; Gong and Yi, 2018). If the quality of service is improved then it eventually increases customer satisfaction (Cristobal et al., 2007) as it is linked with the overall efficiency of the service providers (Kim et al., 2004; Aslam and Farhat, 2020).

In the context of CHS, service is divided into two forms, i.e., online service and offline service. Online service caters such as booking a ride through a mobile app, online payment, and reviews whereas offline service starts when the driver picks up the passenger (Cheng et al., 2018). Both OF-SQ and ON-SQ emerged as significant predictors of satisfaction. Moreover, Marimon et al. (2021) also confirmed that both online and offline perspectives are important predictors of fulfilment and loyalty. The study of Akhmedova et al. (2020) also highlights that the online and offline perspective of service quality affects loyalty and value. Based on this, we propose an argument that both OF-SQ and ON-SQ may lead to enhancement and enrichment of customer satisfaction. Therefore;

H1a ON-SQ of CHS affects customer satisfaction.

H1b OF-SQ of CHS affects customer satisfaction.

3.2 Service quality and loyalty

Loyalty is the favourable attitude of a customer that makes a customer stick with the brand or inclined to make repetitive purchases (Chang and Chen, 2009). It is a commitment of a consumer towards a service (Kim and Son, 2009) or brand (Aslam et al., 2019). But sometimes a consumer makes repetitive purchases due to a lack of some resources like non-availability of variety where consumers only have one option available for availing a specific service so loyalty is actually the preference given by the customers in a competitive environment (Bloemer et al., 1999). Loyal consumers retain their service

providers (Horppu et al., 2008) and good quality service brings more loyal consumers (Budianto, 2019).

Considering CHS, if the service outperforms the expectations, then the customers become satisfied which leads to loyalty (Cheng et al., 2018). The study of Marimon et al. (2021) highlighted that ON-SQ and OF-SQ affect loyalty. Similarly, Akhmedova et al. (2020) also identify the significant impact of ON-SQ and OF-SQ on loyalty. Hence, on the basis of the above discussion, it can be hypothesised:

H2a ON-SQ of a CHS affects customer loyalty.

H2b OF-SQ of a CHS affects customer loyalty.

3.3 Satisfaction and trust

Satisfaction is a feeling of pleasure or displeasure depending on the result of the perceived performance of the consumer when compared to expectations (Ju et al., 2019). Satisfied consumers are observed to have a higher user rate of the services provided (Kim et al., 2009) and trust the e-retailer (Mahmoud et al., 2018). Trust may only be developed when a consumer is satisfied and has a good prior experience with the e-retailer. There is a positive relationship between satisfaction and trust (Horppu et al., 2008). Satisfaction is the factor that leads to trust and a satisfied consumer is fully reliant on the e-retailer for fulfilling the promises (Schirmer et al., 2018).

In the context of CHS, if the consumer is satisfied with the service, trust in the service is ultimately established. Hence,

H3 Satisfaction by the CHS affects trust.

3.4 Trust and loyalty

Trust is the confidence of a consumer in the quality of the goods and services provided by the retailers. A consumer feels insecure while online buying and sharing their personal information, also lack trust is a key reason for not making online purchases (Ribbink et al., 2004), hence; minimising uncertainty is the primary function of trust. Trust is considered an important construct in maintaining long-term relationships (Setó-Pamies, 2012). Past studies have found trust as an antecedent of loyalty (Schirmer et al., 2018; Aslam et al., 2019; Zins, 2001). In order to attain the loyalty of the consumers, it is necessary to gain their trust (Horppu et al., 2008).

From the perspective of CHS, loyalty can be attained if the consumers trust the service provider. Hence,

H4 Trust in the CHS affects loyalty.

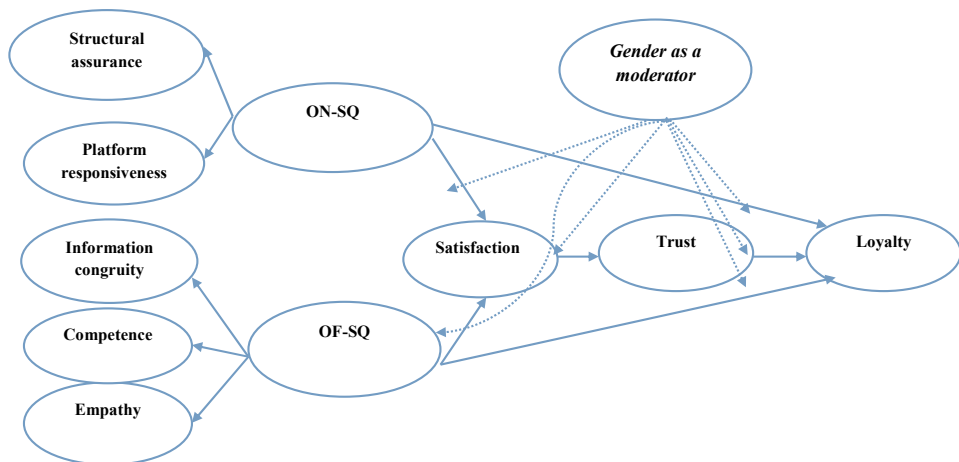
3.5 Differences of perception among gender

Past studies have proved that demographic factors such as age, gender, education, etc. significantly differs for male and females (Kwok et al., 2016). Moreover, studies have shown that gender affects consumer behaviour differently (Arif et al., 2020). Gender schema theory considered gender in models of consumer behaviour (Bem, 1981), and studies in the past have proved that males and females differ in decision-making (Venkatesh and Morris, 2000). Hence, for the CHS context, OF-SQ matters more for

females as the OF-SQ is related to information congruency, competence, and empathy. For females, correct information matters (Dedeoglu, 2019), and the mismatch of the information usually develop a sense of fear among females in CHS (Tang et al., 2021). However, studies have shown that males are more technically oriented, and hence for them, platform responsiveness of the mobile app should be more important. Hoque (2016) stated that females are unlikely to use technology. Hence, the ON-SQ matters the most for developing satisfaction. Service quality relationship differs among gender (Kwok et al., 2016). Hence, in the context of CHS, it can be hypothesised that:

- H5 ON-SQ of CHS affects the satisfaction of males more than females.
- H6 OF-SQ of CHS affects the satisfaction of females more than males.
- H7 ON-SQ of CHS affects the loyalty of males more than females.
- H8 OF-SQ of CHS highly affects the loyalty of females more than males.
- H9 The relationship between satisfaction on trust significantly differs for males and females in CHS.
- H10 The relationship between trust on loyalty significantly differs for males and females in CHS.

Figure 1 Research framework (see online version for colours)



Note: ON-SQ = online service quality and OF-SQ = offline service quality are higher-order reflective constructs

4 Methodology

4.1 Data collection, sampling technique and target population

The data was obtained with the help of a structured questionnaire that consists of two parts. The first part was related to the respondent’s profile in which respondents have to answer about their gender, age, education, occupation, and preferred car-hailing service

(CHS). The second part was related to measurement items of the constructs that were measured through five points Likert scale (1 = strongly disagree and 5 = strongly agree). The measurement items of the constructs were adapted from past studies and their sources are mentioned in 2. The measurement items are mentioned in Appendix.

The target audience is from Karachi, Pakistan which had an experience with CHS. The data was gathered by using the non-probability purposive sampling technique and the participant voluntarily filled out the questionnaire. For data collection, the Google form of the questionnaire was sent to the respondents via social media platforms such as Facebook and WhatsApp.

4.2 *Statistical technique*

This study used the PLS-SEM technique and multigroup analysis (MGA) to test the hypothesis. The reason for using PLS-SEM is that it has vast potential for structural equation modelling-based research (Hair et al., 2011). PLS path modeling is a preferred statistical tool for many studies (Henseler et al., 2016a, 2016b) as it does not require data to be normally distributed (Hair et al., 2014). Also, it works with small sample size and is better to deal with highly complex models (Hair et al., 2011). Hence, in this study, the data is relatively small, and also the proposed model is based on several concepts grounded in various theories.

4.3 *Pilot study and data screening*

Before going to full-scale analysis, a pilot study was conducted to check the reliability of the constructs by taking 50 responses (Lavrakas, 2008). The reliability analysis was performed using SPSS 22 software. The results of Cronbach alpha values of the constructs were above the criteria, i.e., > 0.7 , ensuring the reliability of the instrument.

After confirming the reliability, data was further gathered from the target audience, and in total 300 responses were gathered that were checked for the 'data screening' process. First, the data were checked for missing values, but the results confirm no missing value in the data, then range values were checked, however, no out-of-range values were found. In last, both univariate and multivariate outliers were identified and removed. For univariate outliers, z-score method was used in which any value which is greater or less than 3.29 is considered an outlier and for multivariate outliers, Mahalanobis distance was used. In total, 25 outliers were detected and deleted that reducing the data to 275.

5 **Results**

5.1 *Respondents profile*

Table 1 presents the respondent's profile. In a total of 275 respondents, 102 were male, i.e., 37.09% and 173 were females, i.e., 62.90%. The majority of the respondents belonged to the age group of 23–27, i.e., 63.64%, and about 48% were graduated. Most of the people were professional, i.e., 45.45%, and 52% of the respondents preferred Careem, and 48% preferred Uber.

Table 1 Respondent's profile

	<i>Frequency</i>	<i>%</i>
Gender		
Male	102	37.09
Female	173	62.90
Age		
18–22	29	10.55
23–27	181	65.82
28–32	49	17.82
33–37	11	4.00
38 above	5	1.82
Education level		
Undergraduate	23	8.36
Graduate	144	52.36
Post-graduate	103	37.45
Others	5	1.82
Occupation		
Student	100	36.36
Professional	155	56.36
Housewife	14	5.09
Others	6	2.18
Preferred car hailing app		
Uber	132	48.00
Careem	143	52.00

Source: Authors calculation

5.2 Outer model measurement

For measuring the outer model, content validity, convergent validity, and discriminant validity have to be considered as per the guidelines of Hair et al. (2016). Content validity defines how well the domain content of a construct is explained by its items (Hair et al., 2016), assessed by the loadings of items that should be above 0.7 (Hair et al., 2016; Fornell and Larcker, 1981) and through cross-loadings. The loading of items should be greater in its own construct than that of other research constructs (Hair et al., 2016). Table 2 reports the values of outer loadings of the constructs that meet the criteria above 0.7 and Table 3 reports the results of cross-loadings that also satisfies the condition. All the items have high loadings in their own construct.

After confirming content validity, convergent validity was assessed which measures the extent to which an item correlates positively with other items of the same construct (Hair et al., 2016). Convergent validity is assessed through the value of composite reliability (CR) which should be more than 0.7 (Fornell and Larcker, 1981), and average variance extracted (AVE) which should be above 0.5 (Fornell and Larcker, 1981). All the values of CR and AVE are above the suggested criteria; hence, convergent validity is achieved. Table 2 presents the results of CR and AVE.

Table 2 Outer loadings and convergent validity

<i>Items</i>	<i>Outer loadings</i>	<i>Adapted source</i>
<i>Structural assurance (SA) CR = 0.851, AVE = 0.588</i>		
SA1	0.766	McKnight et al. (2002), Cheng et al. (2018)
SA2	0.781	
SA3	0.789	
SA4	0.728	
<i>Platform responsiveness (PR) CR = 0.858, AVE = 0.669</i>		
PR1	0.751	Lee et al. (2000)
PR2	0.834	Ribbink et al. (2004)
PR3	0.865	Kim et al. (2009)
<i>Information congruity (IC) CR = 0.851, AVE = 0.590</i>		
IC1	0.713	Cheng et al. (2018)
IC2	0.712	
IC3	0.82	
<i>Competence (C) CR = 0.870, AVE = 0.627</i>		
C1	0.785	McKnight et al. (2002), Cheng et al., (2018)
C2	0.832	
C3	0.792	
C4	0.756	
<i>Empathy (E) CR = 0.888, AVE = 0.614</i>		
E1	0.789	McKnight et al. (2002), Cheng et al., (2018)
E2	0.801	
E3	0.757	
E4	0.786	Webb and Webb (2004)
E5	0.786	
<i>Loyalty (LOY) CR = 0.906, AVE = 0.660</i>		
LOY1	0.768	Zhao et al. (2012), Caruana (2002), Cheng et al. (2018)
LOY2	0.771	
LOY3	0.863	
LOY4	0.822	de Reuver et al. (2015).
LOY5	0.833	
<i>Satisfaction (SAT) CR = 0.925, AVE = 0.711</i>		
SAT1	0.844	Zhao et al. (2012), Cheng et al., (2018)
SAT2	0.836	
SAT3	0.836	
SAT4	0.83	Kuo et al. (2009)
SAT5	0.87	Chang and Chen (2009)

Source: Authors calculation

Table 2 Outer loadings and convergent validity (continued)

<i>Items</i>	<i>Outer loadings</i>	<i>Adapted source</i>
<i>Trust (TR) CR = 0.918, AVE = 0.651</i>		
TR1	0.834	de Reuver et al. (2015)
TR2	0.81	
TR3	0.795	
TR4	0.792	
TR5	0.784	Shaw (2014)
TR6	0.823	Karjaluoto et al. (2012)

Source: Authors calculation

Lastly, variance inflation factor (VIF) values were assessed to check multicollinearity. The findings revealed that all the constructs have a VIF value below < 5 showing the absence of multicollinearity. See Table 6.

Lastly, discriminant validity was assessed which measures the extent to which each of the variables is distinct from another variable (Hair Jr et al., 2016). It was assessed by all three methods Fornell and Larcker (1981), cross-loadings, and heterotrait-monotrait (HTMT). According to Fornell and Larcker's criteria, the square root of AVE of the construct i.e. in the diagonal should be greater than associated correlational values present in the off-diagonal values (Fornell and Larcker, 1981). Table 3 provides evidence that all the values in the diagonal are above than the correlational values present in both rows and columns. Hence, discriminant validity is established.

Table 3 Fornell-Larcker criterion

	<i>C</i>	<i>E</i>	<i>IC</i>	<i>LOY</i>	<i>PR</i>	<i>SA</i>	<i>SAT</i>	<i>TR</i>
<i>C</i>	0.792							
<i>E</i>	0.648	0.784						
<i>IC</i>	0.648	0.591	0.768					
<i>LOY</i>	0.579	0.568	0.580	0.812				
<i>PR</i>	0.561	0.542	0.564	0.567	0.818			
<i>SA</i>	0.497	0.515	0.499	0.503	0.467	0.767		
<i>SAT</i>	0.640	0.605	0.641	0.738	0.604	0.569	0.843	
<i>TR</i>	0.596	0.674	0.640	0.667	0.603	0.562	0.701	0.807

Source: Authors calculation

The second approach to confirm discriminant validity is to check cross-loadings. According to this criterion, construct items should have the highest value than all the other loadings in the other construct (Hair et al., 2016). Table 4 presents the results of cross-loadings and it is evident that all construct items have high loadings in their own construct. Hence, confirms discriminant validity. Thirdly, HTMT was used to assess discriminant validity which stated that all the values should be less than the threshold of 0.85 (Henseler et al., 2015). Table 5 presents the results of HTMT and confirms that all the values in the table are meeting the suggested criteria, hence establishing discriminant validity.

Table 4 Cross loadings

	<i>C</i>	<i>E</i>	<i>IC</i>	<i>LOY</i>	<i>PR</i>	<i>SA</i>	<i>SAT</i>	<i>TR</i>
C1	0.785	0.494	0.500	0.464	0.422	0.382	0.500	0.442
C2	0.832	0.522	0.535	0.454	0.410	0.395	0.538	0.494
C3	0.792	0.498	0.516	0.450	0.453	0.405	0.485	0.458
C4	0.756	0.536	0.499	0.467	0.493	0.391	0.501	0.491
E1	0.560	0.789	0.545	0.495	0.549	0.442	0.544	0.578
E2	0.555	0.801	0.521	0.494	0.447	0.409	0.538	0.541
E3	0.456	0.757	0.418	0.419	0.359	0.337	0.421	0.463
E4	0.494	0.786	0.389	0.380	0.380	0.451	0.416	0.555
E5	0.463	0.786	0.428	0.426	0.373	0.373	0.438	0.497
IC1	0.439	0.412	0.713	0.413	0.415	0.423	0.474	0.454
IC2	0.438	0.448	0.712	0.419	0.394	0.309	0.403	0.444
IC3	0.528	0.432	0.820	0.465	0.440	0.379	0.555	0.522
LOY1	0.410	0.431	0.432	0.768	0.417	0.480	0.579	0.545
LOY2	0.480	0.432	0.494	0.771	0.397	0.396	0.541	0.494
LOY3	0.496	0.501	0.501	0.863	0.521	0.391	0.616	0.584
LOY4	0.516	0.459	0.443	0.822	0.492	0.405	0.624	0.510
LOY5	0.451	0.478	0.486	0.833	0.471	0.376	0.635	0.571
PR1	0.468	0.433	0.481	0.412	0.751	0.377	0.515	0.465
PR2	0.440	0.415	0.398	0.438	0.834	0.362	0.455	0.458
PR3	0.470	0.481	0.503	0.536	0.865	0.405	0.512	0.552
SAT1	0.539	0.503	0.532	0.619	0.497	0.511	0.844	0.571
SAT2	0.528	0.462	0.545	0.598	0.510	0.430	0.836	0.587
SAT3	0.560	0.493	0.508	0.618	0.432	0.495	0.836	0.571
SAT4	0.537	0.574	0.579	0.616	0.551	0.452	0.830	0.594
SAT5	0.533	0.516	0.535	0.660	0.550	0.510	0.870	0.629
SA1	0.436	0.418	0.421	0.478	0.363	0.766	0.477	0.445
SA2	0.371	0.407	0.369	0.345	0.381	0.781	0.404	0.393
SA3	0.352	0.346	0.327	0.323	0.322	0.789	0.383	0.366
SA4	0.363	0.406	0.414	0.397	0.363	0.728	0.480	0.522
TR1	0.538	0.565	0.622	0.565	0.556	0.516	0.626	0.834
TR2	0.467	0.489	0.480	0.520	0.550	0.434	0.576	0.810
TR3	0.451	0.515	0.451	0.528	0.450	0.415	0.561	0.795
TR4	0.437	0.567	0.433	0.494	0.455	0.454	0.514	0.792
TR5	0.451	0.564	0.498	0.515	0.433	0.403	0.493	0.784

Source: Authors calculation

Lastly, f-square were assessed to check the effect size. This explains the variance explained by each endogenous variable (Hair et al., 2016). The value of $f \geq 0.02$ is considered small, $f \geq 0.15$ is medium, and $f = 0.35$ is large. The f square value of satisfaction determined by online service quality is 0.140 (i.e., small) and offline service quality is 0.269 (i.e., medium). Moreover, the f square value of loyalty determined by offline service quality is 0.062 (i.e., small) and online service quality is 0.040 (i.e.,

small). However, the f square value of trust determined by satisfaction is 0.964 (i.e., large) and the f square value of loyalty determined by the trust is 0.089 (i.e., small).

Table 5 Heterotrait-monotrait

	<i>C</i>	<i>E</i>	<i>IC</i>	<i>LOY</i>	<i>PR</i>	<i>SA</i>	<i>SAT</i>	<i>TR</i>
<i>C</i>								
<i>E</i>	0.785							
<i>IC</i>	0.824	0.73						
<i>LOY</i>	0.695	0.659	0.712					
<i>PR</i>	0.726	0.676	0.744	0.699				
<i>SA</i>	0.635	0.638	0.654	0.618	0.616			
<i>SAT</i>	0.754	0.69	0.771	0.834	0.735	0.686		
<i>TR</i>	0.701	0.775	0.769	0.754	0.734	0.679	0.778	

Source: Authors calculation

5.3 Inner model measurement

For the inner model measurement, bootstrapping analysis was performed which is the common method to assess hypotheses. For this, 5000 bootstrap samples were selected as suggested by Hair et al. (2014). The results showed that both; ON-SQ ($p < 0.001$, $\beta = 0.346$) and OF-SQ ($p < 0.001$, $\beta = 0.475$) impacts satisfaction. Hence, H1a and H1b are supported. Moreover, ON-SQ ($p < 0.001$, $\beta = 0.209$) and OF-SQ ($p < 0.001$, $\beta = 0.281$) also affect loyalty; hence H2a and H2b are accepted. The result also supports H3 and H4, as satisfaction is found as a contributing factor in developing trust ($p < 0.001$, $\beta = 0.705$) and confirms that trust is an antecedent of loyalty ($p < 0.001$, $\beta = 0.325$).

Table 6 Hypothesis testing

<i>Path</i>	<i>Coefficient</i>	<i>T statistics</i>	<i>P values</i>	<i>Decision</i>	<i>VIF</i>
OF-SQ -> Satisfaction	0.475	8.026	0.000	S	2.021
ON-SQ -> Satisfaction	0.346	5.590	0.000	S	2.021
ON-SQ -> Loyalty	0.209	3.072	0.002	S	2.267
OF-SQ -> Loyalty	0.281	3.039	0.002	S	2.658
Satisfaction -> Trust	0.705	18.405	0.000	S	1.000
Trust -> Loyalty	0.325	3.081	0.002	S	2.445

Note: S = Supported.

Source: Authors calculation

Lastly, the value of R^2 and Q^2 were assessed. The value of R^2 measures the proportion of variance of dependent variables that can be predicted by independent ones (Hair et al., 2016). The service quality predicts satisfaction for about 58.1% and satisfaction further predicts trust for about 49.1%. Moreover, trust and service quality predicts loyalty for about 52.9%.

However, Q^2 determines the predictive relevance of the construct (Hair et al., 2016). The value of Q^2 must be greater than 0 (Henseler et al., 2009). The Q^2 values of loyalty, satisfaction, and trust were found 0.322, 0.383, and 0.295, respectively.

5.4 Multigroup analysis

MGA was also performed in order to check the differences in the relationship between constructs across gender. Studies in the past have identified significant differences in the behavior of males and females (Tarhini et al., 2014; Arif et al., 2020). To perform MGA, pre-requisite steps were followed as suggested by Henseler et al. (2016b). It is suggested to check the measurement invariance of the composite model (MICOM) to establish the absence of measurement invariance that explains the significant differences among groups. The test was performed by considering 5000 permutations as recommended by Henseler et al. (2016b). The MICOM process involves several steps in the first step configural invariance was checked that is automatically established by SmartPLS. In the second step, composite invariance was assessed by comparing the original correlational values with the 5% quantile values. The composite invariance was established if the original correlational values were found above 5% quantile values. Table 7 presents the results and has confirmed compositional invariance. In the third step, composite equality was assessed by equality of means and cross-group variance. To establish composite equality, composite mean difference and composite variance difference should lie in the range 2.5%–97.5% quantile. Table 7 confirmed that all the composite mean difference values and composite variance difference values lie in between the suggested range, hence measurement invariance is established.

Table 7 MICOM

<i>Step 2 – Compositional invariance</i>	<i>Original correlations</i>	<i>5%</i>	<i>Invariance</i>
ON-SQ	0.999	0.996	Yes
OF-SQ	0.999	0.995	Yes
Satisfaction	1.000	0.999	Yes
Loyalty	0.999	0.998	Yes
Trust	1.000	0.999	Yes
<i>Step 3a – Composite equality</i>	<i>Mean-original difference</i>	<i>(2.5%; 97.5%)</i>	<i>Invariance</i>
ON-SQ	-0.061	(-0.238; 0.252)	Yes
OF-SQ	0.010	(-0.252; 0.268)	Yes
Satisfaction	-0.092	(-0.242; 0.262)	Yes
Loyalty	-0.083	(-0.249; 0.259)	Yes
Trust	0.024	(0.254; 0.252)	Yes
<i>Step 3b – Composite equality</i>	<i>Variance-original difference</i>	<i>(2.5%; 97.5%)</i>	<i>Invariance</i>
ON-SQ	0.389	(-0.505; 0.400)	Yes
OF-SQ	0.413	(-0.521; 0.470)	Yes
Satisfaction	0.463	(-0.472; 0.473)	Yes
Loyalty	0.420	(-0.537; 0.486)	Yes
Trust	0.389	(-0.485; 0.461)	Yes

Source: Authors calculation

Next, MGA was performed and the results are reported in Table 8. The results revealed a significant difference between males and females in the effects of OF-SQ and satisfaction. The effects are stronger for females than males. In contrast, there is no significant difference found in the relation to ON-SQ on satisfaction. Moreover, the effect of ON-SQ on loyalty significantly differs for males and females. The results revealed that ON-SQ largely affects males' loyalty. A significant difference is also found among gender for the relation of OF-SQ to loyalty. The results exhibit that OF-SQ largely affects females' loyalty. In contrast, no significant difference was found in the relationship between satisfaction and trust. Lastly, the results highlighted significant differences in the relationship between trust and loyalty and showed that trust largely affects males' loyalty.

Table 8 MGA

<i>Paths</i>	<i>Coefficient (female)</i>	<i>Coefficient (male)</i>	<i>Difference female-male </i>	<i>p value</i>
OF-SQ -> Satisfaction	0.600	0.388	0.212	0.033
ON-SQ -> Satisfaction	0.307	0.336	0.029	0.593
ON-SQ -> Loyalty	0.265	0.149	0.116	0.192
OF-SQ -> Loyalty	0.510	0.170	0.340	0.019
Satisfaction -> Trust	0.198	0.287	0.089	0.742
Trust -> Loyalty	0.114	0.394	0.280	0.031

Source: Authors calculation

6 Conclusions

The aim of this study was to examine the role of OF-SQ and ON-SQ of CHS on satisfaction and loyalty. Also, to address the role of satisfaction on trust and its impact on loyalty. The study further examines the differences in the perception of males and females. The findings re-validate that structural assurance and platform responsiveness are the indicators of online service quality and, information congruity, empathy, and competitiveness are the indicators of OF-SQ. Moreover, the results of the hypotheses indicate that both types of service quality (OF-SQ and ON-SQ) affect customer satisfaction and loyalty. However, OF-SQ plays a strong contributing role in determining satisfaction and loyalty. In past, the study by Cheng et al. (2018), it was evident that OF-SQ highly contributes to satisfying the customer but to build loyalty; ON-SQ emerged as a strong predictor in China. Conversely, in this study, OF-SQ highly affects both satisfaction and loyalty. Hence, the findings of Cheng et al. (2018) contradict the case of OF-SQ and loyalty. The findings of the study explain that for the customers, information congruity, competence, and empathy matter the most in comparison to structural assurance and platform responsiveness. The study of Akhmedova et al., (2020) also identified that OF-SQ largely affects loyalty. This highlights that offline elements such as empathy, competence, and information congruity are key elements that should be considered by CHS providers. OF-SQ elements were also found largely significant in fulfillment in the study of Marimon et al. (2021). But, both perspectives, i.e., ON-SQ and OF-SQ play a role in fostering satisfaction and loyalty.

Moreover, the results declared satisfaction positively affects trust and trust contributes to making the customer loyal to CHS. In past, studies have proved that satisfaction leads to trust and a satisfied consumer fully relies on an e-retailer for fulfilling the promises (Schirmer et al., 2018; Aslam et al., 2019, 2020). Also, trust is an antecedent of loyalty (Schirmer et al., 2018; Aslam et al., 2019). Altogether, the findings confirm that the better the quality of the service (ON-SQ and OF-SQ), the better would be the level of satisfaction in the mind of the consumers which further leads to building up trust and loyalty.

Furthermore, the results of MGA showed some interesting findings. The findings showed a significant difference in gender for OF-SQ and satisfaction and OF-SQ and loyalty. The findings further explain that OF-SQ largely affects females' satisfaction and loyalty. The results showed that for females, OF-SQ matters the most as females are more concerned with empathy, competence, and information congruity. Usually, females feel security-related issues, hence for them, correct information makes them satisfied and loyal. Moreover, schema congruity theory and cognitive fit theory also explain that mismatched information negatively affects satisfaction (Huang et al., 2013). Moreover, a significant difference is also found in the relationship between trust and loyalty. The results highlight that trust largely affects male loyalty.

6.1 Theoretical contribution

The study has numerous contributions such as contributing to the literature of SEC as the study examined the relationship between service quality, satisfaction, trust, and loyalty in the context of CHS in a developing economy. Past studies related to SEC have mainly been conducted in developed economies such as China (Cheng et al., 2018; Wong and Szeto, 2018), Spain (Akhmedova et al., 2020; Alonso et al., 2018), Australia (Rose and Hensher, 2018), etc., and very few of the studies have addressed SEC in developing economy such as Askari et al. (2021) assessed customer satisfaction in Iran. However, they also ignored both perspectives of service quality, i.e., ON-SQ and OF-SQ. Therefore, the study provides insights related to both ON-SQ and OF-SQ in the context of a developing economy that is much needed. Also, Akhmedova et al. (2020) suggest a call for future researchers to address both ON-SQ and OF-SQ perspectives in different geographic settings. Hence, this study considers the new perspective of service quality, i.e., OF-SQ and ON-SQ that covers both the CHS platform and amateur service management. The study also enriches the literature from the perspective of C2C. On the call of Cheng et al. (2018), the study connects trust with loyalty in the setting of CHS and confirmed that trust affects loyalty. The study further identifies a significant difference across gender for SEC. The study highlights that OF-SQ matters the most for females for satisfaction and loyalty.

6.2 Managerial implications

The findings of the study provide insights to the CHS businesses that benefit them to make more satisfied and loyal customers. It is recommended to the managers work on service management. The findings revealed a significant impact of both ON-SQ and OF-SQ in determining customer satisfaction. Hence, it is essential to consider both perspectives (ON-SQ and OF-SQ) in providing service to the customer. As if one service perspective does not meet customer expectation leads to dissatisfaction among customers.

Hence, online and offline services may help the CHSs to better attract more consumers which leads to attaining more satisfaction. The findings further provide insights into that the offline element of service quality highly affects satisfaction. In the industry of CHSs, the quality of the services also relies on the drivers so it is important for the managers to provide uniform and good training to the drivers because it will directly affect their service quality which automatically affects satisfaction. The customers who experience bad services or the customers who become unsatisfied with the services may discontinue using the services so it is really important to work on the quality of services in order to keep the customers satisfied. The managers should also carefully keep checking and balancing the information which is provided by the drivers. They should keep a proper record of the information of the drivers so legal actions can be taken if any mishap happens. Moreover, the platform should be responsive in solving and satisfying the queries and complaints promptly because these factors can actually help in attaining the satisfaction and trust of the customers which may further lead to attain loyalty from the customers. The information provided online should be consistent with the services that are provided offline otherwise the customers might lose their level of trust in the CHS. The results further explain that both perspectives of service quality affect loyalty and offline largely affect loyalty. Hence, it is important for the CHS to focus on offline perspectives such as information congruity, competence, and empathy. For this, it is important for the CHS to provide proper training that helps car drivers to be more empathetic and competent. Car drivers should know how to deal and treat with customers. They must know that customers feel a little uncomfortable if they found any information incongruence.

The findings further showed that OF-SQ largely affects females' satisfaction and loyalty. Hence, it is recommended to CHS make sure to provide the correct information at the time of booking. Also, provide training to the drivers for being more emphatic and competent.

6.3 Future area of research

Though the study provides numerous contributions to the field of SEC still there are few limitations in the study that need to address by future studies. First, the study considers the sample of Karachi, Pakistan. However, to get holistic results other cities can be considered. Moreover, it is recommended to retest the model on other developing and under-developed economies. The model considers satisfaction, trust, and loyalty in addressing service quality but it is also essential to consider other important factors such as car-hailing app stickiness and word-of-mouth (WOM). The moderating role of WOM may play a role in satisfaction and trust. Moreover, it is recommended to test the role of ON-SQ and OF-SQ on perceived value. The element of service recovery can be considered as an antecedent of loyalty. Furthermore, this study considers CHS as an example of a shared economy hence other business that follows the model of a sharing economy can also revalidate the model such as the online food delivery business. Lastly, consumer demographic, and socioeconomic factors may play a role when choosing a particular CHS. Thus, future studies can extend the proposed model by looking into those areas.

References

- Akhmedova, A., Mas-Machuca, M. and Marimon, F. (2020) 'Value co-creation in the sharing economy: The role of quality of service provided by peer', *Journal of Cleaner Production*, Vol. 266, No. 1, p.121736, <https://doi.org/10.1016/j.jclepro.2020.121736>.
- Alonso, B., Barreda, R., dell'Olio, L. and Ibeas, A. (2018) 'Modelling user perception of taxi service quality', *Transport Policy*, Vol. 63, No. 1, pp.157–164, DOI: 10.1016/j.tranpol.2017.12.011.
- Arif, I., Aslam, W. and Hwang, Y. (2020) 'Barriers in adoption of internet banking: a structural equation modeling-neural network approach', *Technology in Society*, Vol. 61, No. 1, p.101231, <https://doi.org/10.1016/j.techsoc.2020.101231>.
- Askari, S., Peiravian, F., Tilahun, N. and Yousefi Baseri, M. (2021) 'Determinants of users' perceived taxi service quality in the context of a developing country', *Transportation Letters*, Vol. 13, No. 2, pp.125–137, <https://doi.org/10.1080/19427867.2020.1714844>.
- Aslam, W. and Farhat, K. (2020) 'Impact of after-sales service on consumer behavioural intentions', *International Journal of Business and Systems Research*, Vol. 14, No. 1, pp.44–55, <https://doi.org/10.1504/IJBSR.2020.104145>.
- Aslam, W., Arif, I., Farhat, K. and Khursheed, M. (2018) 'The role of customer trust, service quality and value dimensions in determining satisfaction and loyalty: an empirical study of mobile telecommunication industry in Pakistan', *Market-Tržište*, Vol. 30, No. 2, pp.177–194, <https://doi.org/10.22598/mt/2018.30.2.177>.
- Aslam, W., Ham, M. and Farhat, P. (2019) 'Building brand loyalty: an application of expectation confirmation model in mobile social commerce', *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, Vol. 13, No. 4, pp.806–825, <http://hdl.handle.net/10419/214253>.
- Aslam, W., Hussain, A., Farhat, K. and Arif, I. (2020) 'Underlying factors influencing consumers' trust and loyalty in e-commerce', *Business Perspectives and Research*, Vol. 8, No. 2, pp.186–204, <https://doi.org/10.1177/2278533719887451>.
- Bem, S.L. (1981) 'The BSRI and gender schema theory: a reply to Spence and Helmreich', *Psychol. Rev.*, Vol. 88, No. 4, pp.369–371, <https://doi.org/10.1037/0033-295X.88.4.369>.
- Benoit, S., Baker, T.L., Bolton, R.N., Gruber, T. and Kandampully, J. (2017) 'A triadic framework for collaborative consumption (CC): motives, activities and resources & capabilities of actors', *Journal of Business Research*, Vol. 79, No. 1, pp.219–227, <https://doi.org/10.1016/j.jbusres.2017.05.004>.
- Bismo, A., Sarjono, H. and Ferian, A. (2018) 'The effect of service quality and customer satisfaction on customer loyalty: a study of grabcar services in Jakarta', *Pertanika Journal of Social Sciences & Humanities*, Vol. 26, No. 1, pp.33–47.
- Bloemer, J., De Ruyter, K.O. and Wetzels, M. (1999) 'Linking perceived service quality and service loyalty: a multi-dimensional perspective', *European Journal of Marketing*, Vol. 33, Nos. 11/12, pp.1082–1106, <https://doi.org/10.1108/03090569910292285>.
- Budianto, A. (2019) 'Customer loyalty: quality of service', *Journal of Management Review*, Vol. 3, No. 1, pp.299–305, <http://dx.doi.org/10.25157/jmr.v3i1.1808>.
- Caruana, A. (2002) 'Service loyalty: the effects of service quality and the mediating role of customer satisfaction', *European Journal of Marketing*, Vol. 36, Nos. 7/8, pp.811–828, <https://doi.org/10.1108/03090560210430818>.
- Chang, H.H. and Chen, S.W. (2009) 'Consumer perception of interface quality, security, and loyalty in electronic commerce', *Information & Management*, Vol. 46, No. 7, pp.411–417, <https://doi.org/10.1016/j.im.2009.08.002>.
- Cheng, X., Fu, S. and de Vreede, G.J. (2018) 'A mixed method investigation of sharing economy driven car-hailing services: online and offline perspectives', *International Journal of Information Management*, Vol. 41, No. 1, pp.57–64, <https://doi.org/10.1016/j.ijinfomgt.2018.03.005>.

- Cohen, B. and Kietzmann, J. (2014) 'Ride on! Mobility business models for the sharing economy', *Organization & Environment*, Vol. 27, No. 3, pp.279–296, <https://doi.org/10.1177/1086026614546199>.
- Collier, J.E. and Bienstock, C.C. (2006) 'Measuring service quality in e-retailing', *Journal of Service Research*, Vol. 8, No. 3, pp.260–275, <https://doi.org/10.1177/1094670505278867>.
- Cox, J. and Dale, B.G. (2001) 'Service quality and e-commerce: an exploratory analysis', *Managing Service Quality: An International Journal*, Vol. 11, No. 2, pp.121–131, <https://doi.org/10.1108/09604520110387257>.
- Cristobal, E., Flavián, C. and Guinaliu, M. (2007) 'Perceived e-service quality (PeSQ) Measurement validation and effects on consumer satisfaction and web site loyalty', *Managing Service Quality: An International Journal*, Vol. 17, No. 3, pp.317–340, <https://doi.org/10.1108/09604520710744326>.
- de Reuver, M., Nikou, S. and Bouwman, H. (2015) 'The interplay of costs, trust and loyalty in a service industry in transition: the moderating effect of smartphone adoption', *Telematics and Informatics*, Vol. 32, No. 4, pp.694–700, <https://doi.org/10.1016/j.tele.2015.02.008>.
- Dedeoglu, B.B. (2019) 'Are information quality and source credibility really important for shared content on social media? The moderating role of gender', *International Journal of Contemporary Hospitality Management*, Vol. 31, No. 1, pp.513–534, <https://doi.org/10.1108/IJCHM-10-2017-0691>.
- Eckhardt, G.M., Houston, M.B., Jiang, B., Lambertson, C., Rindfleisch, A. and Zervas, G. (2019) 'Marketing in the sharing economy', *Journal of Marketing*, Vol. 83, No. 5, pp.5–27, <https://doi.org/10.1177/0022242919861929>.
- Edvardsson, B., Johnson, M.D., Gustafsson, A. and Strandvik, T. (2000) 'The effects of satisfaction and loyalty on profits and growth: products versus services', *Total Quality Management*, Vol. 11, No. 7, pp.917–927, <https://doi.org/10.1080/09544120050135461>.
- Ennew, C.T., Reed, G.V. and Binks, M.R. (1993) 'Importance-performance analysis and the measurement of service quality', *European Journal of Marketing*, Vol. 27, No. 2, pp.59–70, <https://doi.org/10.1108/03090569310026402>.
- Fornell, C. and Larcker, D.F. (1981) 'Structural equation models with unobservable variables and measurement error: algebra and statistics', <https://doi.org/10.1177/002224378101800313>.
- Gong, T. and Yi, Y. (2018) 'The effect of service quality on customer satisfaction, loyalty, and happiness in five Asian countries', *Psychology & Marketing*, Vol. 35, No. 6, pp.427–442, <https://doi.org/10.1002/mar.21096>.
- Griffith, D.A., van Esch, P. and Trittenbach, M. (2018) 'Investigating the mediating effect of Uber's sexual harassment case on its brand: does it matter?', *Journal of Retailing and Consumer Services*, Vol. 43, No. 1, pp.111–118, <https://doi.org/10.1016/j.jretconser.2018.03.007>.
- Gupta, S., Buriro, A. and Crispo, B. (2019) 'DriverAuth: a risk-based multi-modal biometric-based driver authentication scheme for ride-sharing platforms', *Computers & Security*, Vol. 83, No. 1, pp.122–139, <https://doi.org/10.1016/j.cose.2019.01.007>.
- Hahn, S.E., Sparks, B., Wilkins, H. and Jin, X. (2017) 'E-service quality management of a hotel website: a scale and implications for management', *Journal of Hospitality Marketing & Management*, Vol. 26, No. 7, pp.694–716.
- Hair Jr., J.F., Hult, G.T.M., Ringle, C. and Sarstedt, M. (2016) *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, Sage Publications, Thousand Oaks, CA.
- Hair Jr., J.F., Sarstedt, M., Hopkins, L. and Kuppelwieser, V.G. (2014) 'Partial least squares structural equation modeling (PLS-SEM): an emerging tool in business research', *European Business Review*, Vol. 26, No. 2, pp.106–121, <https://doi.org/10.1108/EBR-10-2013-0128>.
- Hair, J.F., Ringle, C.M. and Sarstedt, M. (2011) 'PLS-SEM: indeed a silver bullet', *Journal of Marketing theory and Practice*, Vol. 19, No. 2, pp.139–152, <https://doi.org/10.2753/MTP1069-6679190202>.

- Hamenda, A. (2018) 'An integrated model of service quality, price fairness, ethical practice and customer perceived values for customer satisfaction of sharing economy platform', *International Journal of Business & Society*, Vol. 19, No. 3, pp.709–724.
- Harding, S., Kandlikar, M. and Gulati, S. (2016) 'Taxi apps, regulation, and the market for taxi journeys', *Transportation Research Part A: Policy and Practice*, Vol. 88, No. 1, pp.15–25, <https://doi.org/10.1016/j.tra.2016.03.009>.
- Henseler, J., Hubona, G. and Ray, P.A. (2016a) 'Using PLS path modeling in new technology research: updated guidelines', *Industrial Management & Data Systems*, Vol. 116, No. 1, pp.2–20, <https://doi.org/10.1108/IMDS-09-2015-0382>.
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2015) 'A new criterion for assessing discriminant validity in variance-based structural equation modeling', *Journal of the Academy of Marketing Science*, Vol. 43, No. 1, pp.115–135, <https://doi.org/10.1007/s11747-014-0403-8>.
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2016b) 'Testing measurement invariance of composite using partial least squares', *International Marketing Review*, Vol. 33, No. 3, pp.405–431, <https://doi.org/10.1108/IMR-09-2014-0304>.
- Henseler, J., Ringle, C.M. and Sinkovics, R.R. (2009) 'The use of partial least squares path modeling in international marketing', in Sinkovics, R.R. and Ghauri, P.N. (Eds.): *New Challenges to International Marketing (Advances in International Marketing)*, Vol. 20, No. 1, pp.277–319, [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014).
- Hoque, M.R. (2016) 'An empirical study of mHealth adoption in a developing country: the moderating effect of gender concern', *BMC Medical Informatics and Decision Making*, Vol. 16, No. 1, pp.1–10, <https://doi.org/10.1186/s12911-016-0289-0>.
- Horppu, M., Kuivalainen, O., Tarkiainen, A. and Ellonen, H.K. (2008) 'Online satisfaction, trust and loyalty, and the impact of the offline parent brand', *Journal of Product & Brand Management*, Vol. 17, No. 6, pp.403–413, <https://doi.org/10.1108/10610420810904149>.
- Huang, L., Tan, C.H., Ke, W. and Wei, K.K. (2013) 'Comprehension and assessment of product reviews: a review-product congruity proposition', *Journal of Management Information Systems*, Vol. 30, No. 3, pp.311–343, <https://doi.org/10.2753/MIS0742-1222300311>.
- Ju, Y., Back, K.J., Choi, Y. and Lee, J.S. (2019) 'Exploring Airbnb service quality attributes and their asymmetric effects on customer satisfaction', *International Journal of Hospitality Management*, Vol. 77, No. 1, pp.342–352, <https://doi.org/10.1016/j.ijhm.2018.07.014>.
- Jun, M., Yang, Z. and Kim, D. (2004) 'Customers' perceptions of online retailing service quality and their satisfaction', *International Journal of Quality & Reliability Management*, Vol. 21, No. 8, pp.817–840, <https://doi.org/10.1108/02656710410551728>.
- Karjaluoto, H., Jayawardhena, C., Leppäniemi, M. and Pihlström, M. (2012) 'How value and trust influence loyalty in wireless telecommunications industry', *Telecommunications Policy*, Vol. 36, No. 8, pp.636–649, <https://doi.org/10.1016/j.telpol.2012.04.012>.
- Kassim, N. and Asiah Abdullah, N. (2010) 'The effect of perceived service quality dimensions on customer satisfaction, trust, and loyalty in e-commerce settings: a cross cultural analysis', *Asia Pacific Journal of Marketing and Logistics*, Vol. 22, No. 3, pp.351–371, <https://doi.org/10.1108/13555851011062269>.
- Kim, J., Jin, B. and Swinney, J.L. (2009) 'The role of etail quality, e-satisfaction and e-trust in online loyalty development process', *Journal of Retailing and Consumer Services*, Vol. 16, No. 4, pp.239–247, <https://doi.org/10.1016/j.jretconser.2008.11.019>.
- Kim, M.K., Park, M.C. and Jeong, D.H. (2004) 'The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services', *Telecommunications Policy*, Vol. 28, No. 2, pp.145–159, <https://doi.org/10.1016/j.telpol.2003.12.003>.
- Kim, S.S. and Son, J.Y. (2009) 'Out of dedication or constraint? A dual model of postadoption phenomena and its empirical test in the context of online services', *MIS Quarterly*, Vol. 33, No. 1, pp.49–70, <https://doi.org/10.2307/20650278>.

- Ku, E.C. and Chen, C.D. (2015) 'Cultivating travellers' revisit intention to e-tourism service: the moderating effect of website interactivity', *Behavior & Information Technology*, Vol. 34, No. 5, pp.465–478.
- Kuo, Y.F., Wu, C.M. and Deng, W.J. (2009) 'The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services', *Computers in Human Behavior*, Vol. 25, No. 4, pp.887–896, <https://doi.org/10.1016/j.chb.2009.03.003>.
- Kwok, S.Y., Jusoh, A. and Khalifah, Z. (2016) 'The influence of service quality on satisfaction: Does gender really matter?', *Intangible Capital*, Vol. 12, No. 2, pp.444–461, <http://dx.doi.org/10.3926/ic.673>.
- Lavrakas, P.J. (2008) *Encyclopedia of Survey Research Methods*, Sage Publications.
- Lee, E.Y., Lee, S.B. and Jeon, Y.J.J. (2017) 'Factors influencing the behavioral intention to use food delivery apps', *Social Behavior and Personality: An International Journal*, Vol. 45, No. 9, pp.1461–1473, <https://doi.org/10.2224/sbp.6185>.
- Lee, G.G. and Lin, H.F. (2005) 'Customer perceptions of e-service quality in online shopping', *International Journal of Retail & Distribution Management*, Vol. 33, No. 2, pp.161–176, <https://doi.org/10.1108/09590550510581485>.
- Lee, H., Lee, Y. and Yoo, D. (2000) 'The determinants of perceived service quality and its relationship with satisfaction', *Journal of Services Marketing*, Vol. 14, No. 3, pp.217–231.
- Lessig, L. (2008) *Remix: Making Art and Commerce Thrive in the Hybrid Economy*, Penguin, New York [online] <http://florida.theorange grove.org/og/items/9ce5f0c6-9ef8-4da1-907a-c212ebcdc4fd/1/> (accessed 3 January 2022).
- Lim, K.B., Yeo, S.F., Goh, M.L. and Gan, J.A.X. (2018) 'A study on consumer adoption of ride-hailing apps in Malaysia', *Journal of Fundamental and Applied Sciences*, Vol. 10, No. 6, pp.1132–1142, <http://dx.doi.org/10.4314/jfas.v10i6s.74>.
- Mahmoud, M.A., Hinson, R.E. and Adika, M.K. (2018) 'The effect of trust, commitment, and conflict handling on customer retention: the mediating role of customer satisfaction', *Journal of Relationship Marketing*, Vol. 17, No. 4, pp.257–276, <https://doi.org/10.1080/15332667.2018.1440146>.
- Marimon, F., Mas-Machuca, M. and Llach, J. (2021) 'Making the long and adventurous journey from quality to loyalty', *Total Quality Management & Business Excellence*, Vol. 32, Nos. 15–16, pp.1713–1731, <https://doi.org/10.1080/14783363.2020.1770077>.
- McKnight, D.H., Choudhury, V. and Kacmar, C. (2002) 'Developing and validating trust measures for e-commerce: an integrative typology', *Information Systems Research*, Vol. 13, No. 3, pp.334–359, <https://doi.org/10.1287/isre.13.3.334.81>.
- Möhlmann, M. (2015) 'Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again', *Journal of Consumer Behaviour*, Vol. 14, No. 3, pp.193–207, <https://doi.org/10.1002/cb.1512>.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988) 'SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality', *Journal of Retailing*, Vol. 64, No. 1, pp.12–40.
- Pearson, A., Tadisina, S. and Griffin, C. (2012) 'The role of e-service quality and information quality in creating perceived value: antecedents to web site loyalty', *Information Systems Management*, Vol. 29, No. 3, pp.201–215.
- Puschmann, T. and Alt, R. (2016) 'Sharing economy', *Business & Information Systems Engineering*, Vol. 58, No. 1, pp.93–99, DOI: 10.1007/s12599-015-0420-2.
- Ribbink, D., Van Riel, A.C., Liljander, V. and Streukens, S. (2004) 'Comfort your online customer: quality, trust and loyalty on the internet', *Managing Service Quality: An International Journal*, Vol. 14, No. 6, pp.446–456, <https://doi.org/10.1108/09604520410569784>.
- Rose, J.M. and Hensher, D.A. (2018) 'User satisfaction with taxi and limousine services in the Melbourne metropolitan area', *Journal of Transport Geography*, Vol. 70, No. 1, pp.234–245, DOI: 10.1016/j.jtrangeo.2018.06.017.

- Schaefers, T., Wittkowski, K., Benoit (née Moeller), S. and Ferraro, R. (2016) 'Contagious effects of customer misbehavior in access-based services', *Journal of Service Research*, Vol. 19, No. 1, pp.3–21, <https://doi.org/10.1177/1094670515595047>.
- Schirmer, N., Ringle, C.M., Gudergan, S.P. and Feistel, M.S. (2018) 'The link between customer satisfaction and loyalty: the moderating role of customer characteristics', *Journal of Strategic Marketing*, Vol. 26, No. 4, pp.298–317, <https://doi.org/10.1080/0965254X.2016.1240214>.
- Setó-Pamies, D. (2012) 'Customer loyalty to service providers: examining the role of service quality, customer satisfaction and trust', *Total Quality Management & Business Excellence*, Vol. 23, Nos. 11–12, pp.1257–1271, <https://doi.org/10.1080/14783363.2012.669551>.
- Shaw, N. (2014) 'The mediating influence of trust in the adoption of the mobile wallet', *Journal of Retailing and Consumer Services*, Vol. 21, No. 4, pp.449–459, <https://doi.org/10.1016/j.jretconser.2014.03.008>.
- Tang, B.J., Li, X.Y., Yu, B. and Wei, Y.M. (2020) 'How app-based ride-hailing services influence travel behavior: an empirical study from China', *International Journal of Sustainable Transportation*, Vol. 14, No. 7, pp.554–568, <https://doi.org/10.1080/15568318.2019.1584932>.
- Tang, Y., Guo, P., Tang, C.S. and Wang, Y. (2021) 'Gender-related operational issues arising from on-demand ride-hailing platforms: safety concerns and system configuration', *Production and Operations Management*, Vol. 30, No. 10, pp.3481–3496, <https://doi.org/10.1111/poms.13444>.
- Tarhini, A., Hone, K. and Liu, X. (2014) 'Measuring the moderating effect of gender and age on e-learning acceptance in England: a structural equation modeling approach for an extended technology acceptance model', *Journal of Educational Computing Research*, Vol. 51, No. 2, pp.163–184, <https://doi.org/10.2190/EC.51.2.b>.
- Tussyadiah, I.P. and Pesonen, J. (2016) 'Impacts of peer-to-peer accommodation use on travel patterns', *Journal of Travel Research*, Vol. 55, No. 8, pp.1022–1040, <https://doi.org/10.1177/0047287515608505>.
- Venkatesh, V. and Morris, M.G. (2000) 'Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior', *MIS Quarterly*, Vol. 24, No. 1, pp.115–139, <https://doi.org/10.2307/3250981>.
- Webb, H.W. and Webb, L.A. (2004) 'SiteQual: an integrated measure of web site quality', *Journal of Enterprise Information Management*, Vol. 17, No. 6, pp.430–440, <https://doi.org/10.1108/17410390410566724>.
- Wong, R.C.P. and Szeto, W.Y. (2018) 'An alternative methodology for evaluating the service quality of urban taxis', *Transport Policy*, Vol. 69, No. 1, pp.132–140, DOI: <https://doi.org/10.1016/j.tranpol.2018.05.016>.
- Xu, J.D., Benbasat, I. and Cenfetelli, R.T. (2013) 'Integrating service quality with system and information quality: an empirical test in the e-service context', *MIS Quarterly*, Vol. 37, No. 3, pp.777–794.
- Zervas, G., Proserpio, D. and Byers, J.W. (2017) 'The rise of the sharing economy: estimating the impact of Airbnb on the hotel industry', *Journal of Marketing Research*, Vol. 54, No. 5, pp.687–705, <https://doi.org/10.1509/jmr.15.0204>.
- Zheng, H. and Wu, J. (2017) 'Online to offline business: Urban taxi dispatching with passenger-driver matching stability', in *2017 IEEE 37th International Conference on Distributed Computing Systems (ICDCS)*, IEEE, June, pp.816–825, DOI: 10.1109/ICDCS.2017.14.
- Zins, A.H. (2001) 'Relative attitudes and commitment in customer loyalty models: some experiences in the commercial airline industry', *International Journal of Service Industry Management*, Vol. 12, No. 3, pp.269–294, <https://doi.org/10.1108/EUM0000000005521>.

Appendix

Structural assurance (SA)

- The mobile platform provides enough safeguards to make me feel comfortable for car-hailing.
- I feel assured that legal structures adequately protect me from problems on the platform.
- I feel confident that encryption and other technological advances on the platform make it safe for me to conduct online transactions there.
- In general, the platform is now a robust and safe environment in which to transact

Platform responsiveness (PR)

- The platform is always quick to response to my inquiries
- It is easy to get in contact with this online company
- When I have a problem, car hailing apps show a sincere interest in solving it

Information congruity (IC)

- The goods and services usually conform to what it showed on the mobile platform
- The offline goods and services are always in line with the descriptions online.
- I usually find inconsistencies between the information showed online and displayed offline

Competence (C)

- In general, most drivers in the platform are competent at serving their customers
- I always feel confident that I can rely on drivers to finish their part of riding.
- I feel that most Internet drivers are good at what they do
- I always feel comfortable relying on drivers to arrive at my destination

Empathy (E)

- I feel that most drivers would act in a customers' best interest.
- If a customer requires help, most drivers would do their best to help
- Most drivers are interested in customer well-being, not just their own well-being
- The drivers pay special attention to each customer
- The drivers deal with the customers in a caring fashion

Loyalty (LOY)

- I intend to continue using this certain car hailing service in the future and would keep using as regularly as I do now.
- When new types of car-hailing service emerges, I will continue to select this car hailing service
- I will strongly recommend others to use car hailing service
- I would say positive things to others about car hailing service
- I would recommend friends/family to adopt car hailing service

Satisfaction (SAT)

- I think that I made the correct decision to use this car-hailing service
- In general, I am satisfied with the customer service I have received from the car-hailing service
- The car hailing service satisfied my needs to take a car.
- The services provided by car hailing service are better than expected
- I'm satisfied with my decision to use car hailing service

Trust (TR)

- This car hailing services is honest.
- This car hailing services acts responsibly.
- This car hailing service understands customers.
- This car hailing service cares about me.
- This car hailing service is trustworthy.
- This car hailing service is reliable.