

## PalArch's Journal of Archaeology of Egypt / Egyptology

### RELATIONSHIP AMONG CUSTOMER SATISFACTION (CARRYOVER), SERVICE QUALITY AND CUSTOMER LOYALTY: AN ANALYSIS THROUGH HIERARCHICAL LINEAR MODELLING.

*Dr. Pardeep Bawa Sharma*

Associate Professor of Marketing

University School of Business, Chandigarh University, India

Contact: +91-9878995315. Email: [drpardeepbsharma@gmail.com](mailto:drpardeepbsharma@gmail.com)

**Dr. Pardeep Bawa Sharma -- Relationship among Customer Satisfaction (Carryover), Service Quality and Customer Loyalty: An Analysis through Hierarchical Linear Modelling. -- Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(6). ISSN 1567-214x**

**Keywords: Customer satisfaction (Carryover), Service quality, Customer satisfaction, mediated moderation model, hierarchical line modeling**

#### **Abstract**

The purpose of this paper is to explore the role of Customer Satisfaction (Carryover [i.e. CS (C)] on service quality (i.e. SQ). In order to ascertain that, authors hypothesizes that CS (C) leads to SQ which further goes on to affect customer loyalty (i.e. CL). To achieve these objectives data were collected from 317 customers of 4 major organized retailers in India. A mediated moderation model was tested with the help of hierarchical liner modeling. Results revealed that a) CS (C) positively leads to SQ and CS. b) SQ mediates between CS (C) and CL and c) CS (C) moderates the relationship between SQ and CL.

#### **I. Introduction**

SQ has been widely tested and proved to be leading to CS, CL and employee productivity that in turn leads to organizational effectiveness ((Parasuraman, Zeithaml, & Berry, 1994). Organizations spend a substantial amount of their earnings on achieving a desired level of employee productivity and organizational effectiveness through SQ and CS that have substantially proved as significant factors for sustainability of an organization (Oliver, 1993). Profound interest in these variables in relation to CL is due to a disproportional but positive effect of these on CL (Hogan et al., 2003). It has been proved beyond doubt that a company should keep on making new customers but not on the basis of existing one and just an increment of 5% in customer retention may improve profitability somewhere in the range of a quarter to three quarter

(Reichheld and Sasser, 1990). There has been a continuous debate on whether SQ or CS is a function of CS and SQ respectively. One school of thought is of the opinion that CS explains SQ (Bolton and Drew, 1991) whereas the other set of researchers are of the opinion which is other way around i.e. SQ leads to CS (Anderson & Sullivan, 1993; Pollack, 2009; Bitner, 1990). Author assumes that CS is explained by SQ as a wide body of work supports this notion.

Such critical significance of CL has resulted in researchers exploring the antecedents of from different perspectives and in distinct cultural setups (Egan, 2004). The one construct that has been explored the most in relation to CL is CS (Schurr & Ozanne, 1985; Doney and Cannon, 1997). Thus, a wide body of work has explored not only how CS leads to CL but have also examined the variables related to these that may mediate or moderate between this relationship (Sheth and Sisodia, 1999; Lee, Lee, & Yoo, 2000). These constructs have been explored in different ways but there is one construct that hasn't been explored as much as these and i.e. CS (C). It is termed as a tendency to evaluate the level of SQ on the basis of level of CS in the previous encounter. There hasn't been much work on relationship of CS (C) on SQ and in turn CL. So with this study author intends to examine this association.

As per a report (IBEF, 2019), Indian retail industry has been in a continuous growth trajectory and has become one of the lucrative destinations in the world due to the size of one of the biggest middle class in the world. Govt. of India has also been very proactive in terms of needs of this industry and after there has been a consistent surge in domestic consumption, it relaxed norms for key foreign retailers to enter India. Some other factors like enhanced limit of FDI in retail in multiband and single brand and introduction of GST, has resulted in an altogether new impulse to this sector. Based on all these factors direct investment by foreign retailers stood at \$ 1.9 billion at the end of year 2018. Although level of SQ hasn't been up to the mark but it is quickly catching up with the European and US counterparts after the companies from these places have set up their shops in India in the form of Cash and carry stores, hyper markets and super markets in India. So all of this calls for an exploration of said relationship from different perspectives.

## **II. THEORETICAL BACKGROUND AND HYPOTHESIS TESTING**

This section deals with exploring and hypothesizing in relation to interplay of SQ, carryover CS and CL.

### *Relationship between CS (C) and SQ*

SQ is conceptualized as “the gap between what customer got against what he expected” (Parasuraman et al. 1988) whereas CS is broadly considered as “how much content a customer is with how the service is delivered” (Parasuraman, Zeithaml and Berry, 1985). The relationship between these two variables can also be understood from a conceptual perspective. That suggests that in case a negative gap between customer expectation and actual service delivery is there,

he/she will not be satisfied on account of company not able to match on perceived SQ. In contrast, he/she will be satisfied if this difference is positive. Another significant concept that needs to be understood is the level of gap. A negative gap will always result in dissatisfaction whereas a positive gap will lead to CS or customer delight depending on amount of gap. If the gap is positive and way beyond customer expectation customer can be delighted also although it depends on some other factors also. SQ and CS association is widely explored relationship in services marketing research (Teas, 1993). Research on the interplay is not new. For instance, in a conceptual study by (Gronroos, 1984) it was asserted that CS is a resultant of SQ which was later rejected by (Parasuraman, Zeithaml, and Berry, 1988) arguing that actually it is other way around. After that there have been a good amount of work conducted on interplay of these two variables and authors from both sides validated both the notions. But off late (post 1990) a wide body of work have validated what (Gronroos, 1984) asserted. Though there has been still some debate about it but by and large the majority (Dagger & Sweeney, 2006; Cronin & Taylor, 1992; Collier & Bienstock, 2006) is on (Gronroos, 1984) side. But association between these two constructs must not be explored from the standard perspective only in any service set up. The consumption-system approach looks at this relationship in an altogether different way. As per that CS is also associated with future purchase intentions through a dual mediation route (Mittal, Kumar, & Tsiros, 1999; Bagozzi, 1981). In other words a series of service encounters on the basis of actual CS may result in purchase decision through SQ and some other constructs depending upon the service setting and is conceptualized as “carryover effect”. But this model is not a static model as the carryover effect is a result of multiple service encounters over a period of patronage. So an ideal way to explore is through a longitudinal framework. The carryover model is exhibited in figure 1.

Figure 1. CS (C) and SQ



So author intends to test the following hypotheses

H<sub>1</sub>: CS (C) leads to SQ.

H<sub>2</sub>: CS (C) leads to CL.

#### *Relationship between SQ and CL*

CL has been conceptualized as “intensely held propensity to buy a product or service associated with a specific brand repeatedly despite other factors that may result in a behaviour to part ways with the product/service associated with existing brand” (Oliver, 2010). (Dick & Basu, 1994) opined that CL is defined by personality and attitude. It is defined as a specific behaviour towards a

product or service associated with a specific brand (Wolter et al. 2017). Not only it has been conceptualized in terms of whole behaviour but some authors have explained it as acting in a favourable way towards a product with which the experience has been positive (Oliver, 1999). CL has also been connected to some facets of behaviour. For instance, an indirect link of SQ with CS was proposed by (Heskett et al. 1994). They proposed that a good SQ leads to CS which in turn lead to CL. Some other authors explained this relationship by the outcomes. They explained that overall profitability of a company largely depends on the fact that how much that company is able to hold its existing customers. If it does then profitability happens on account of not spending much on existing customers as the research has proved that retaining existing customers is easier in terms of efforts and cost (Ladhari, Souiden, & Ladhari, 2011; Zhang & Chen, 2008; Yi & Gong, 2006). Exploration of relationship between SQ, CS and CL is not uncommon but CS as a moderator hasn't been widely explored for a basic reason that widely assumed relationship has CS in the middle of SQ and CL (Leisen & Hyman, 2004; Statia, Li, & Choi, 2013). This is the unique part of this research and another thing that makes it unique is that instead of CS, the CS (C) on SQ and CL is being examined

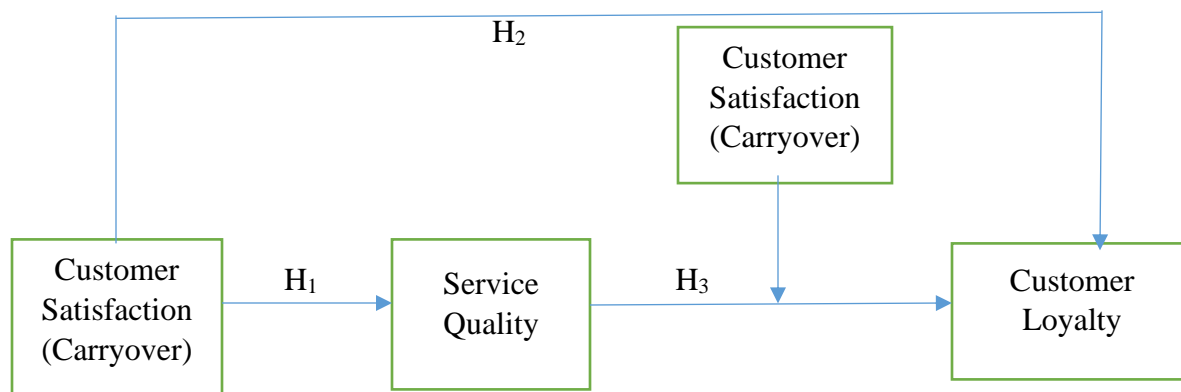
So the following hypotheses are proposed

H3: SQ leads to CL

H4: SQ mediates the relationship between CS (C) and CL.

H5: CS (C) moderates the relationship between SQ and CL such that high carryover effect will lead to a stronger relationship.

Figure 2. Hypothesized model



Refer to figure 2 for hypothesized model which is a mediated moderation model. CS is at unit level and SQ and CL are at individual levels.

### III. RESEARCH METHODOLOGY

Data were collected from 317 customer with a patronage of more than a year following the definition of CL by (Oliver, 2010) of 4 major organized retailers in India. Data was collected using a five point Likert scale. (Parasuraman,

1985) scale was used to measure CS whereas to measure CL (Stoian and Tugulea, 2012) was used. To measure SQ a scale by (Parasuraman, 1988) was used. IBM SPSS AMOS 20.0 was used to test hypothetical and measurement models. Measurement model was evaluated using confirmatory factor analysis (CFA) and then using structural equation modelling (SEM) proposed model was tested. To ascertain whether or not CS (C) can be grouped at the unit level, Rwg(j) values and correlation coefficients (Intra-class) were used ((James et al., 1993). Hierarchical linear modeling was used due to respondents being nested within units, to test the hypotheses. A two-step model (Zhao and Cavusgil, 2006) was used to test the moderation effect.

#### IV. DATA ANALYSIS

##### *Examining the measurement model*

The first step in examining measurement model was to test the significant assumption of normality. There was issue with skewness and kurtosis as these were not in range. In order to have them in range outliers were removed as a result skewness and kurtosis came in range i.e. (-0.412-0.368) and (0.329-0.453). So assumption of normality was fulfilled. Two distinct procedural measures as suggested by (Podsakoff et al., 2003; Tehseen et al., 2017) were adopted to have common method variance under control. With the help of these two procedural measures author assumes the common method variance has been controlled to a limit where it can't adversely affect the results.

##### *Construct Validity*

Following (Hair et al., 2010) all factors loadings were found to be above 0.5. On account of all  $R^2$  values being above 0.2, suggested a requisite level of linearity between measurement and latent variables. All AVE values were found to be above 0.5 which is considered as threshold so it can be inferred that convergent validity is established. All inter construct correlations were found greater than square roots of all AVEs (Fornell and Larcker, 1981) so it is also inferred that discriminant validity is established. Construct validity is also established as convergent and discriminant validities were established. For details refer to table 1.

##### *Data Aggregation*

As suggested by (LeBreton and Senter, 2008) and (Bliese, 2000), Rwg(j) [a measure of within-group consensus and agreement] and ICC (1) [which is inter construct correlation] respectively were used to calculate restricted within-unit variance. On account of values of both these indices above the threshold cutoffs CS (C) is aggregated at unit level.

**Table 1: Construct Validity**

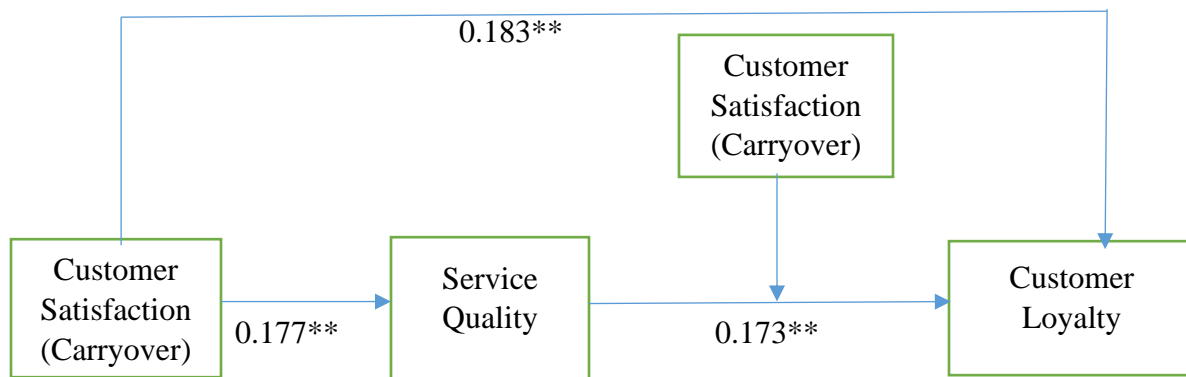
Construct	Items	Factor Loadings ( $\lambda$ )	$R^2$	AVEs	CCRs
CL	CL1	0.736	0.542	0.522	0.867

	CL2	0.677	0.458		
	CL3	0.748	0.560		
	CL4	0.821	0.674		
	CL5	0.679	0.461		
	CL6	0.663	0.440		
CS (Carryover Effect)					
	CS1	0.672	0.452	0.576	0.891
	CS2	0.813	0.661		
	CS3	0.861	0.741		
	CS4	0.687	0.472		
	CS5	0.798	0.637		
	CS6	0.701	0.491		
SQ					
	SQ1	0.864	0.746	0.643	0.901
	SQ2	0.744	0.554		
	SQ3	0.871	0.759		
	SQ4	0.739	0.546		
	SQ5	0.781	0.610		

*Testing hypothesized model*

All major fit indices [ $\chi^2 = 323.137$ ; GFI = 0.599; CFI = 0.665; TLI = 0.901; NFI = 0.843; RMR = 0.025; RMSEA = 0.034] were came within the permissible limits so it can be inferred that there is a good fit between data and the model. 62.1% of the variance was explained by CS (C) in SQ. SQ explained a variance of 61.8% in CL whereas CS (C) shown a variance of 58.6% in CL.

Figure 2. SEM Results



CS (C) positively and significantly explains SQ ( $\beta_1 = 0.177$ ,  $t = 2.987$ ;  $p < 0.05$ ) so author can infer that  $H_1$  is accepted. CS (C) positively and

significantly explains CL also ( $\beta_1 = 0.183$ ,  $t = 3.067$ ;  $p < 0.05$ ). On other hand SQ too explains CL positively and significantly ( $\beta_1 = 0.173$ ,  $t = 2.234$ ;  $p < 0.05$ )

**Table 2: SEM Results**

Hypothesis	Path	Path Coefficients (Standardized)	t-Values	Result
H1	CS (C)-SQ	0.177	2.987**	Accepted
H2	CS (C)-CL	0.183	3.067**	Accepted
H3	SQ-CL	0.173	2.234**	Accepted

\*\* at 5% level of significance

Mediation effect of SQ on the relationship involving CS (C) and CL was measured using bootstrapping.

**Table 3: Bootstrapping Results Customer Satisfaction (Carryover)**

Total Effect	Standardized Path Coefficients (Effect Size)	p-Vaules
Total Effect	-0.496	0.028
Direct Effect	-0.175	0.015
Indirect Effect	-0.321	0.021

Results shown that total effect (Direct and indirect) of CS (C) on CL was significant [(effect size = -0.496,  $p = 0.028$ )]. Direct and indirect effect was also found to be significant [(effect size = -0.175,  $p = 0.015$ )] and [(effect size = -0.321,  $p = 0.021$ )]. Refer table 3 for the same.

To validate these results the relationships as stated in hypotheses were examined using hierarchical liner modelling as well. Results reveal that

**Table 4: Hierarchical Linear Modelling Results**

	Service Quality	Customer Loyalty		
	Model 1	Model 2	Model 3	Model 4
	$\lambda$ (SE)	$\lambda$ (SE)	$\lambda$ (SE)	$\lambda$ (SE)
Customer Satisfaction (C)	0.38 (0.14)*	0.44 (0.15)*	0.31 (0.11)	1.12 (0.52)
Service Quality			0.29 (0.05)*	0.23 (0.08)*
Service Quality X Customer Loyalty				0.42 (0.13)*
R <sup>2</sup>	0.25	0.27	0.26	0.28

\*  $p < 0.05$

Results revealed that CS (C) is positively linked to SQ ( $\lambda = 0.38$ ;  $p < 0.05$ , Model 1) so H<sub>1</sub> is accepted. H<sub>2</sub> is also accepted as CS (C) positively linked to CL ( $\lambda = 0.44$ ;  $p < 0.05$ , Model 2). Same is the case with relationship

concerning SQ and CL i.e. SQ is positively linked to CL ( $\lambda = 0.31$ ;  $p < 0.05$ , Model 3) so  $H_3$  is also accepted. The relationship between CS (C) and CL becomes insignificant after introducing SQ ( $\lambda = 0.31$ ;  $p < 0.05$ , Model 3) so we can say that SQ fully mediates the relationship between CS (C) and CL. So  $H_4$  is accepted.

Also it was revealed that the SQ-CL relationship is moderated by CS (C) such that high carryover effect will lead to a stronger relationship ( $\lambda = 0.42$ ;  $p < 0.05$ , Model 4). So  $H_5$  is accepted.

## V. DISCUSSION AND SCOPE FOR FUTURE RESEARCH

One service encounter can't really be a basis for ascertaining the level of SQ or CS let alone CL. If one look at the research design over a period of last 10 years it is revealed that most of the work has explored and examined the static nature of this relationship. From the perspective of comprehension it probably may work but from the perspective of creating a know-how for practitioners, it seems that cross sectional view of the relationship is not justified. Ans this study too lacks in this very notion of exploring this relationship dynamically. So there is a wide scope to explore this relationship over a period of time so that the right essence of this relationship can be ascertained. Also generalization for practitioners without working on adjusting levels of variables (mediators and moderators) and knowing the right levels, is not possible. Another challenge is the uniqueness of every service setup. So the generalizability of this in other service and cultural setups is challenging. But that is an opportunity for researchers to explore how it varies across service and cultural setups.

## VI. LIMITATIONS

There are two limitations of this study which are a) This relationship doesn't work in isolation and vacuum. It is a dynamic relationship so any attempt to explore it in a static environment or like a static environment will serve a partial purpose. So longitudinal studies are a best fit for exploring such a relationship which matures over time. Though the author tried to cross validate with the help of a parallel statistical analysis in the form of hierarchical linear modelling but ideally it should not be explored as a cross sectional design. b) This study could have been comprehensive if the author had explored the moderation of one or two categorical variables. So future research on it should explore this relationship with couple of categorical variables to know how this relationship is influenced by say socio economic variables.

## VII. CONCLUSION

Review of existing studies where CS's carryover effect was not taken, it is revealed that CS can't create the effect that carryover effect may create. Results revealed that CS (C) affects SQ and CL positively. That suggests that when CL



is explored in relation to CS or SQ, one must take multiple service encounters as these variables shape over a period of time and it is essential to do it that way as these are directly related to each other and process of effect takes time over multiple service encounters. So retail store managers must not assume that the level of satisfaction of previous encounter/s can't result in SQ. So the efforts to create desired SQ and CS must be consistent and based on previous encounters. Another application of these results can be handy in designing or improving and existing loyalty program keeping in mind carryover effect of CS over and above standard RFM analysis to profile customers.

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