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Impact of Supportive After-Sales Services on Customer Satisfaction in Automobile Industry

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Abstract: The key to the success of the automobile industry is not only dependent upon selling great vehicles to customers, but also on giving excellent after-sales services. Hence, this paper is an attempt to explore the supportive after-sales services for customer satisfaction in the automobile industry. This study employs a quantitative analytic technique, using data obtained from 336 consumers of car automobile companies by non-probabilistic snowball sampling. Exploratory Factor Analysis and Cronbach's internal consistency has been used to explore the association among variables. The findings of the research indicate that five supporting after-sales services have been identified that support customers at the service centre while availing after-sales services of their vehicles and these supporting after-sales services are staff Support Service, Customer Lounge Service, Billing & Payment Service, Telephonic & Feedback Service and Complaint Handling Service which exhibit strong internal consistency.

1. Introduction

A well-developed transportation system plays the most important role in the economic growth and development of any country. Now a days, the automobile sector is a major contributor to economic growth worldwide, particularly in developing nations like India. As of now, it contributes over 7% to India's GDP, 49% to the country's manufacturing GDP & 26% to the industrial GDP and a large number of individuals are working in this sector. The key to the success of the automobile industry right now is not only based on offering great vehicles to consumers, but also in providing a large number of after-sales services. After-sales services (ASS) are the services rendered to the customer after the product is sold, to smoothen the product usage during its life cycle (Gaiardelli *et al.*, 2007). Different researchers approached ASS with different viewpoints. For example, Rigopoulou *et al.* (2008)

approached ASS as the total of all actions undertaken to facilitate the sale transaction. Kurata and Nam, (2010) also defined after-sales service as a customer, technical, and product support. Notably, the prominence of after-sales services has been widely documented by the manufacturers of durable products. It occupies an even more important role in a developing country as it stimulates the growth of the company by offering a competitive advantage, and brand positioning, and also leads to profit generation. Moreover, these days consumers are becoming very subtle in taking their purchase decision (Ahmed and Sanatullah, 2011) as they are well aware of the kind of services they receive. This ultimately causes a rise in expectations from the service providers (Gupta and Raman, 2022). A review of past literature reveals that considering the importance of after-sales services, a number of researchers have conducted studies pertaining to different areas i.e international marketing (Asugman *et al*., 1997), manufacturing (Xiangmin *et al*., 1997), electric appliances (Alshare, 2020), retailing (Gagliano and Hathcote, 1994; Chiguvi, 2020), clothing (Othman, 2021), etc. Taking specifically the case of the automobile industry it can be said that after-sales services are crucial as it directly affects the profit. There are a number of players in the market and to remain ahead, the service centres need to focus on satisfying the customers by delivering them the best after-sales services. Customers do not always visit the authorized service centres after availing of the free services provided by the manufacturers. The reason can be either nearness of the location or cost-effectiveness. This results in hampering the brand image besides loss of revenue. This situation can be avoided if excellent after-sales services are provided to customers at the service centre. This leads to the formation of a research question i.e. which services support the customers at the service centre while availing after-sales services in the automobile industry? Considering the case of the automobile industry it can be said that most of the earlier studies have stressed the role of customer satisfaction either in general (Chu and Desai, 1995) or relating to after-sales services, but none of the studies have covered very important aspect relating to customer satisfaction with respect to after-sales services at the service centre. The current research makes an effort to focus on the services which support the customers while availing after-sales services at a service centre.

Although several researchers have defined the concept of after-sales service considering different contexts all through the value chain, the definitions specified possess one characteristic in common it is a customer-oriented procedure that aims to satisfy the customer's needs and retain them for the long term. In recent times, companies consider after-sales services as one of the profit-center (Mishra *et al*, 2021). Furthermore, due to the high cost of customer acquisition, companies focus extensively on satisfying existing customers (Opata *et al*, 2021). In search of comfortable and delightful services, customers have moved beyond the fundamental functioning and features of service/goods and want the supplier to provide the highest quality. Therefore, it has become a prerequisite for every company to understand their customer's needs and the services which support customers at the time of availing after-sales services for delighting their customers and gaining a competitive advantage as well. Also, bestowing supporting services helps an organization to create loyalty among its customers, which further becomes a strong base for its continual growth and development. Intense competition in the automobile industry has forced companies to bring cars with advanced features, so as to provide luxury products to their customers. This has augmented the product prices and in return, the customer

expects beyond the advanced functionality of the product. Soothing ambiance, clean washrooms, fresh drinking water, waiting lounge, etc., are a few examples of the services that support the customers at the time of availing after-sale service.

2. Review of Literature

Customers who are really happy are more inclined to be engaged, which further results in inflated sales and profitability (González, 2015). This relationship between satisfaction, service quality, and loyalty seem to be apparent but in reality, it is much more intricate as opposed to what it seems as it gets affected by various determinants. These determinants may differ region-wise, economy-wise, and even group-wise. This section will outline the numerous research on these issues in connection to the automobile industry to assist readers in better grasping this relationship.

2.1. Service Quality

Zeithaml and Bitner (1996) characterized services with attributes such as heterogeneity, intangibility, production-consumption simultaneity, and direct interaction. With the increasing complexity of measuring service quality, researchers developed various approaches to assess service quality. For instance, Parasuraman *et al.* (1985) introduced a service quality assessment model having ten dimensions in total. Vast studies have adopted the SERQUAL model for measuring service quality in different contexts (Tumsekcali *et al.*, 2021; Azhagan *et al.*, 2021). However, SERQUAL effectiveness in assessing service quality was questioned by Cronin and Taylor (1992) stating the inefficiency of the model in evaluating the attitude toward the services which takes a long time to develop. Furthermore, Cronin and Taylor (1992) developed an instrument for measuring service quality named "SERVERE", which was accepted by many researchers and their results outperformed the SERQUAL model. This shows that assessing customer's models differ in their explanatory strength when applied in different contexts.

2.2. Customer Satisfaction

Customer satisfaction refers to customers' post-purchase evaluation of a product or service offering (Hunt, 1977). A deep understanding of consumers' beliefs and attitudes is a prerequisite for truly understanding customer satisfaction (Mohanty and Das, 2022). Every person compares his perceived expectations with the actual quality of products/services. If the actual results exceed the perceived results, it results in satisfaction, and vice-versa results in dissatisfaction (Oliver, 1980). The same service can be assessed differently by different users depending on the consumer's perceived expectations and their level of tolerance (Nerdinger and Neumann, 2007). A satisfied customer often tends to share a positive word of mouth and also recommends using the product to others.

2.3. Customer Loyalty

Researchers often define customer loyalty as the situation when customers repeatedly purchase the product, but it may be caused by technical reasons, lack of alternatives, switching costs, or habit (Homburg and Koschate, 2007). Schreiber (2010) also talked about two types of consumer loyalty: retention and compromise. "Retention" is classified as the situation when the customer is not able to

switch to any other seller and "Compromise" is defined as the situation when the buyer restrains to switch for the reason they feel psychologically linked to the seller. Some researchers also considered these affective levels while describing customer loyalty (Nerdinger and Neumann, 2007). Some of the researchers also defined customer loyalty as future behaviour in the form of repurchase intention (Homburg and Koschate, 2007). Considering the above definitions, it is clear that researchers have expressed customer loyalty as behavioural or attitudinal commitment, however, there is no single accepted definition.

2.4. After-Sales Service and Customer Satisfaction

After-sales service has more impact on customer satisfaction. Customer satisfaction is a metric that evaluates how well a company's products and services satisfy customer expectations. Customer satisfaction is heavily influenced by after-sale service. After-sales service has a favourable association with customer satisfaction (Giri and Thapa, 2016). Product characteristics, pricing, and aftermarket all have a role in customer happiness. Customer satisfaction was substantially predicted by product delivery, installation, and warranty combined. Customer contentment is influenced by several factors, including product quality and social responsibility, and satisfaction rises as service quality improves. In the research conducted by Menon and Raj (2012), on the topic Model Development and Validation for studying consumers' preferences of car owners, the results indicate that in the passenger automobile market, the buyer was a primary determiner who sought individualised attention for his after-sale service with the manufacturers. Car washing, phone service, maintenance, spare part supply, and warranty service are all proven to be highly connected to consumer satisfaction with after-sales service. Customer satisfaction toward after-sales service was investigated by Amonkar (2016), who looked at numerous components of after-sales service. It was revealed in this research that the quality of after-sales service has a great influence on customer satisfaction.Customer satisfaction was shown to be impacted not only by the quality of products and services but also by the quality of after-sales support.

So far as the previous literature is concerned, researchers have majorly focused intensely on identifying the relationships between service quality, customer satisfaction, and loyalty with after-sales services in the automobile industry. No one study was conducted on the services which support customers while availing after-sales services at the service centre. After-sales service and the services supporting these services have become vital point of consideration for strategy formulation and satisfaction (Li *et al.*, 2014). Automobile companies often make the senior manager accountable for administering the supporting after-sales services. As a result, managers need meticulous attention to understand the customer's needs and provide them with supporting services. Accordingly, managers will be able to make efficient and precise decisions regarding effective strategy formulation, if they know which supportive services impact the quality of after-sales services. To the best of our knowledge, this is the first work to explore supportive after-sales services in the automobile industry which fills the gap in this area and these services play a significant role in customer satisfaction and loyalty. Therefore, it is worthwhile to explore the services that support customer at the time of availing after-sales services at automobile service centres.

3. Objective of the Study

The main objective of this study is:

- To explore the services that support the customers at service centres while availing after-sales services in the automobile industry.

4. Research Methodology

The sample has been collected from the customers of car automobile companies namely; Maruti Suzuki, Hyundai Motor, Honda Motor, and Tata Motors based on the highest market share or sale data. Data has been collected from the five districts of Punjab namely; Amritsar, Jalandhar, Ludhiana, Mohali, and Patiala based on the highest numbers of authorized service centres of respective companies. For data collection, a mixed sample strategy was utilised, with 400 respondents targeted using snowball sampling and was approached using questionnaire which consists of questions related to basic information which defines the consumer as experienced or non-experienced as per the study. 365 respondents were found to be experienced and matched the criteria for purposive sampling. Out of these, 29 questionnaire were not received and finally, 336 responses were taken for the detailed analysis.

A total of 400 respondents were chosen through snowball sampling, and they were contacted using a questionnaire that asked them about the fundamentals that, according to the study, categorize consumers as experienced or inexperienced. The study used a chain referral approach to recruit participants, in which current participants suggested potential participants to them among their social networks. It was discovered that 365 respondents met the requirements for purposive sampling and were experienced. However, 29 respondents' responses were disregarded due to inaccuracies and inconsistencies. As a result of the necessary fill-out checks in the online Google form, there were no missing values in the data. As a result, the responses of 336 respondents—representing an 84% response rate were utilised for data evaluation and interpretation. Software G*power v3.1.9.7 was used to determine the minimal sample size necessary centered on statistical power (Sharma et al., 2021). A sample of 316 is needed to obtain statistical power of 0.95 with an effect size of 0.05. Consequently, we obtained a large enough sample size to do a statistical analysis.

The statistical analyses were performed using exploratory factor analysis using SPSS v. 22 to relate the related variables and find the underlying major factors impacting the services that consumers receive at the service centre while availing after-sales services. Because exploratory factor analysis is a statistical approach that can shed light on the link between several correlated but seemingly unrelated variables in terms of only a few underlying factors, it was used in this study (Overall and Klett, 1972). The principal component analysis approach was chosen to extract the factors since the goal was to reduce the majority of the original data (variances) into a small number of factors for forecasting. Furthermore, when there are more than 30 items in the factor analysis, the principal component analysis method is regarded as the most appropriate method (Goel *et al.*, 2021).

5. Data Analysis and Discussion

Exploratory factor analysis is a statistical tool for reducing data into a significant subset of summary factors is carried out to investigate the phenomenon's conceptual framework. Factor analysis is grounded

on the notion that measured and observed components may be constrained to reduced latent constructs with a shared variance that are non-observable, a procedure known as dimension reduction (Bartholomew *et al.*, 2011). EFA, an approach for analysing the properties of interconnections across a diverse set of variables, is outlined in a tiny subset of the group of highly interrelated variables known as factors. The other two key steps in EFA are selecting a technique for factor extraction and factor rotation. Principal Component Analysis (PCA) was utilized for factor extraction in the research because it accounts for the entire variation in the available dataset. Statements with Eigenvalues greater than one have been retained (Hair *et al.*, 2010; Chhabra and Mehrotra, 2022). Moreover, identifying the factor rotation techniques was yet another significant stage in implementing EFA. Of the several possible factor rotation techniques, Varimax is the most commonly used. The present research used EFA with PCA and Varimax rotation.

5.1. Sample Adequacy Test

The Kaiser-Meyer-Olkin (KMO) analysis is used to assess the adequacy of data samples. KMO aids in determining sample adequacy for every variable in the study as well as for the entire model. Barlett's Test of Sphericity (BTS) was used to test a hypothesis that the measurements are mutually independent.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.756
Bartlett's Test of Sphericity	Approx. Chi-Square	8121.543
	Df	351
	Sig.	0.000

Source: Authors' Own Compilation

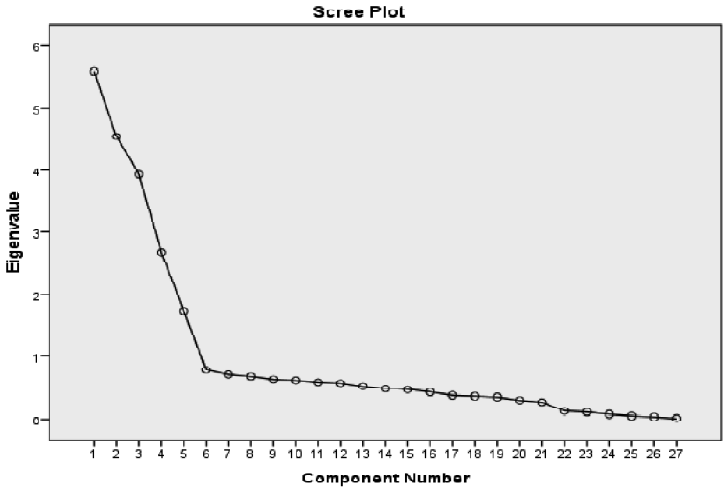

Figure 1: Screen Plot of Factors that Indicates Supportive Services

Source: Authors' Own Compilation

According to Table 1, the KMO value is 0.797, which is greater than the minimum recommended limit of 0.7, and the score of Bartlett's Test of Sphericity is substantial. As a result, both of the prerequisites for doing factor analysis were satisfied. The study then moved on to elicit the supportive after-sales services used through EFA (Table 2).

Table 2: Rotated Component Matrix Factors that Indicates Supportive Services

Rotated Component Matrix[a]

	Component				
	1	*2*	*3*	*4*	*5*
SS26	.754				
SS25	.746				
SS7	.745				
SS18	.732				
SS10	.728				
SS12	.727				
SS17	.718				
SS6	.703				
SS23	.682				
SS2		.899			
SS13		.897			
SS27		.891			
SS11		.881			
SS15		.799			
SS16		.752			
SS9			.960		
SS24			.946		
SS5			.938		
SS19			.934		
SS8			.929		
SS14				.886	
SS21				.869	
SS1				.732	
SS22				.710	
SS20					.842
SS4					.840
SS3					.721

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.
Source: Authors' Own Compilation

Figure 1 and Table 2 show the eigenvalues of all the retrieved statements and factors, respectively. Eight factors were retrieved from the dataset in totality, all of which had factor loadings greater than 0.6. The factors extricated besides their factor loadings, communalities, eigenvalues, variance explicated, and Cronbach's alpha is specified underneath.

Table 3: Staff Support Service (Factor 1)

		Loadings	*H2*	*EV*	*VE (%)*	*A*
	Factor 1: Staff Support Service			20.692	17.828	0.783
SS26	Service staff are always available at service center to attending you	.754	.575			
SS25	Service staff are always polite during customer interaction	.746	.559			
SS7	Service staff are competent to understand the problems of customers	0.745	0.559			
SS18	Service staff have good communication skill at service center	0.732	0.563			
SS10	Service staff are professional and knowledgeable about the advice they give	0.728	0.553			
SS12	Service staff give clear and accurate information regarding services problems	0.727	0.53			
SS17	Service staff inform you about the estimated time & cost of services	0.718	0.52			
SS6	Service staff deliver the vehicle at promised time	0.703	0.517			
SS23	Service staff explain to customers about the work which has done on the vehicle	0.682	0.47			

Notes: H2= Communalities; EV= Eigen Values; VE= Variance explained; α= Cronbach's alpha

Source: Authors' Own Compilation

The "Staff Support Services" was the first factor identified from the study. Table 3 certainly illustrates that all factor loadings were above the minimum specified threshold of 0.6. All of the items' communalities were greater than 0.5. The factor explains 17.828 % of the overall variance, exhibiting strong internal consistency (Cronbach's alpha= 0.783 > 0.7).

The "Customer Lounge Service" was the second factor identified from the study. Table 4 certainly illustrates that all factor loadings were above the minimum specified threshold of 0.6. All the items' communalities were greater than 0.5. The factor explains 16.624% of the overall variance, exhibiting strong internal consistency (Cronbach's alpha= 0.894 > 0.7).

Table 4: Customer Lounge Service (Factor 2)

		Loadings	*H2*	*EV*	*VE (%)*	*A*
	Factor 2: Customer Lounge Service			16.821	16.624	0.894
SS2	Service center has display facility in waiting area for customers to supervise their vehicles	.899	.829			
SS13	Waiting room with proper sitting arrangements and facilities is available for customers	.897	.847			
SS27	Ambiance of waiting room in service center is clean and comfortable	.891	.816			
SS11	Fresh drinking water and refreshment facility is available at the service center	.881	.789			
SS15	Clean and hygienic washroom facility is available for the customers	.799	.656			
SS16	Food and beverages are available at service center	.752	.582			

Notes: H2= Communalities; EV= Eigen Values; VE= Variance explained; α= Cronbach's alpha

Source: Authors' Own Compilation

Table 5: Billing & Payment Service (Factor 3)

		Loadings	*H2*	*EV*	*VE (%)*	*Á*
	Factor 3: Billing & Payment Service			14.575	16.599	0.916
SS9	Service center provides complete and fair bills to customers.	.960	.924			
SS24	Final bills as per the cost estimate(s) provided to you	.946	.899			
SS5	There is minimal waiting time for the billing transactions at service station.	.938	.887			
SS19	All bill charges applied are clearly explained to the customers	.934	.873			
SS8	Payment facility through debit/credit card or online transaction for billing is available at service station.	.929	.866			

Notes: H2= Communalities; EV= Eigen Values; VE= Variance explained; α= Cronbach's alpha

Source: Authors' Own Compilation

The "Billing & Payment Service" was the third factor identified from the study. Table 5 certainly illustrates that all factor loadings were above the minimum specified threshold of 0.6. All the items' communalities were greater than 0.5. The factor explains 16.599 % of the overall variance, exhibiting strong internal consistency (Cronbach's alpha = 0.916 > 0.7).

Table 6: Telephonic & Feedback Service (Factor 4)

		Loadings	*H2*	*EV*	*VE (%)*	*Á*
	Factor 4: Telephonic & Feedback Service			9.934	9.913	0.874
SS14	Accuracy to solve the problem through telephone	.886	.824			
SS21	Inform to customers about updated and due services through telephone	.869	.773			
SS1	On time feedback is taken through telephone	.732	.539			
SS22	The telephone answered promptly to customers	.710	.520			

Notes: H2= Communalities; EV= Eigen Values; VE= Variance explained; α= Cronbach's alpha

Source: Authors' Own Compilation

The "Telephonic & Feedback Service" was the fourth factor identified from the study. Table 6 certainly illustrates that all factor loadings were above the minimum specified threshold of 0.6. All the items' communalities were greater than 0.5. The factor explains 9.913 % of the overall variance, exhibiting strong internal consistency (Cronbach's alpha= 0.874 > 0.7).

Table 7: Complaint Handling Service (Factor 5)

		Loadings	*H2*	*EV*	*VE (%)*	*Á*
	Factor 5: Complaint Handling Service			6.450	7.507	0.908
SS20	Servicecenter has proper complaint handling system to handle the customer's complaints	.842	.735			
SS4	Supervisors at service center make a fair judgment on complaints	.840	.717			
SS3	Complaints are sort out quickly	.721	.595			

Notes: H2= Communalities; EV= Eigen Values; VE= Variance explained; α = Cronbach's alpha

Source: Authors' Own Compilation

The "Complaint Handling Service" was the fifth factor identified from the study. Table 7 certainly illustrates that all factor loadings were above the minimum specified threshold of 0.6. All the items' communalities were greater than 0.5. The factor explains 7.507% of the overall variance, exhibiting strong internal consistency (Cronbach's alpha= 0.908 > 0.7).

From this analysis, five factors were identified, and all these factors are considered as supportive after sales services in this study by the researcher;

- Factor 1 was identified as Staff Support Service.
- Factor 2 was identified as Customer Lounge Service.
- Factor 3 was identified as Billing & Payment Service.

- Factor 4 was identified as Telephonic & Feedback Service.
- Factor 5 was identified as Complaint Handling Service.

After-sales services are those services provided by the business to their customers after selling the products which ensure that an organization's services and goods satisfy its consumers. Satisfaction of the customers of the automobile depends upon two things first one is what type of services are provided by the company to their customers called major after-sales services and another one is which type of support provided by the company to their customers at the time of availing these major after-sales services at service centers called supporting after-sales services. Supporting after-sales services support the customers when they come to service center for getting servicing of their vehicles by providing various services to them. Customer may be dissatisfied due to poor supporting after-sales services even though satisfied with the major after-sales services like no availability of waiting area, poor staff behavior, poor complaint handling system, poor billing and payment system, etc.Here, the researcher has identified the above five supportive after-sales services through EFA which highly affect customer satisfaction and loyalty in the automobile industry.

5.2. Reliability Statistics

Reliability is defined as the extent to which a survey can provide consistent results and free random error (Hair *et al.,* 2010). Cronbach's alpha was used to determine the internal consistency between the set of variables and measure a specific construct. A score of 0.7 is considered the minimal level of acceptability to show robust reliability (Hair *et al*., 2010).

Table 8: Cronbach's Alpha of the Identified Supportive After-Sales Services

Cronbach's alpha	*Perception*
Staff Support Service	0.783
Customer Lounge Service	0.894
Billing & Payment Service	0.916
Telephonic & Feedback Service.	0.874
Complaint Handling Service	0.908

Source: Authors' Own Compilation

Table 8 shows consistent results exhibiting strong internal consistency that also have been found in other studies (Herbst & Berndt, 2006), showing the comparative reliability of these findings.

5.3. Implications

The present study uncovers some of the important factors leading to customer satisfaction with respect to after-sales services in the automobile industry. A novel attempt has been made to study the impact of these factors at the service centre. The results of a study can be useful for the service providers as it can help them to elevate the level of their services which are considered important by the customers.

This can prove profitable for them, as customer satisfaction leads to customer loyalty also (Rahim *et al.*, 2012). Moreover, it helps to gain a competitive advantage also. Additionally, an understanding of these factors can be beneficial for the customers also as the service providers will put their best efforts to satisfy the customers by concentrating on the factors.

6. Conclusion

Customer satisfaction is the key to the success of any business as it can help to attain a competitive advantage. Considering the fact that the automobile sector plays a crucial role in the development of an economy, it becomes imperative to know the factors which satisfy the customers. Prior literature has thrown light on the after-sales services provided by the manufacturers of automobiles. The present study makes an incremental contribution to the existing literature by exploring the services which support customers at service centres of an automobile while availing major after-sales services. Five factors are identified through EFA, considered as supportive after-sales services which indirectly effect major after-sales services and play significant role to satisfy the customers.

It can be concluded from the findings of the study that in order to satisfy the customers and make them loyal, it is essential to make certain that long-term relationship should be developed with customers and it is possible only if the management of service centers provide supportive after-sales services to their customers. This is especially significant in the automobile business, as supporting services play a critical role in consumer happiness and loyalty.

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