

## Service Performance as Influencer of Customer Satisfaction in the Tire Repair Service Industry in Central Region of Ghana

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### **Abstract**

*The purpose of the study was to determine the influence of service quality on customer satisfaction in the vehicle tire maintenance and repair service industry in the Central Region of Ghana as a means of identifying shortcomings and providing suggestions to improve upon services within the industry in the region. Multistep sampling technique was adopted. The judgmental sampling technique was used to select four administrative districts due to relatively high population size, and consequential economic, commercial and industrial activities. These were Cape Coast Metropolis, Kasoa, Winneba, and Agona-Swedru Municipalities. A quantitative approach was used to deal with 225 respondents at a response rate of 93.8 percent. Descriptive statistics, Pearson's correlation coefficient, Cronbach alpha, Variance Inflation Factor (VIF), Durbin-Watson factor, reliability test and multiple regressions were used to analyze the data. The study results cannot be generalized due to relatively small sample size and also that it failed to corroborate with the generic characteristic of the SERVQUAL model. The study has, however, shown that tire maintenance and repair provider performance in the region on empathy relatively needs critical attention if overall performance is to be enhanced. The other factors, tangibles, reliability, responsiveness and assurance also demand more room for improvement. The study has revealed that the relationship between reliability, responsiveness, tangibles and assurance on one hand and customer satisfaction on the other is generally strong, positive and significant. Generally, the result of the study has therefore confirmed the fact that service quality is an influencer of customer satisfaction. The study also confirmed the use of SERVPERF scale as a suitable and valid scale for measuring service quality and for helping to determine the relationship between service quality and customer satisfaction.*

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**Keywords:** Customer Satisfaction, Reliability, SERVQUAL, SERVPERF, Tire Repair,

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### **1. Introduction**

The services sector, of which the transportation industry is no exception, makes a significant contribution to the Gross Domestic Product (GDP) in many countries including Ghana (Abor & Quartey, 2010). Globally, including developed and developing economies, a contribution of about 64% was made from the transportation sector in 2012 (Powell, 2015; Abor & Quartey, 2010; Mensah, 2004). Directly and indirectly, the growth of the tire repair services industry in Ghana has been alongside a corresponding growth with the transportation industry (Powell, 2015). As Micro, Small and Medium Enterprise (MSME), the tire repair industry is a contributor to employment, Gross Domestic Production, business establishment and economic growth (Abor & Quartey, 2010; Mensah, 2004). Vehicle tire is one of the salient components of the automobile. Safety of passengers and vehicles largely depends on the

quality of tires used by vehicles. According to Customers, Excise and Preventive Service (CEPS), between the period of 2003 and 2007, a total of 250,585 vehicles were imported into the country, an average of 70,146 vehicles per annum (CEPS, 2008). Most of these vehicles were second hand vehicles. Inferentially, an average of about 280,584 vehicle tires of these vehicles had to contend with in terms of maintenance and repair, disregarding those imported directly to be sold to vehicle owners.

A recent study conducted by the National Road Safety Commission (NRSC) revealed that about 75 percent of tires imported into the country have expired (Ghanatrade, 2016). According to Rudolph Beckley, the Deputy Director in charge of Research, Monitoring and Evaluation at NRSC, used tires increase vehicular accident risk by 30 percent and that tire defect is a major contributor to over 15 percent vehicular fatal crashes in Ghana. He adds that even unused tires imported after 4 years of its manufacture has considerable risk factor when used. However, most drivers and vehicle owners find it more appropriate to go for used tires. The reason is that, used tires are comparably far cheaper than new ones; for while used tires may cost between GH¢ 40.00 and GH¢ 200.00, new ones may cost between GH¢150.00 and GH¢700.00 (Muzzu, 2014). New tires may cost between 3.5 and 3.75 times the cost of used tires. It can hence be deduced that patronage of used tires is largely due to economic reasons. These developments make the vehicle tire repair service very crucial in protecting property and human lives. Quality service in the industry is therefore indispensable in this regard.

Osman and Omar (2007), intimate that quality has a greater meaning to the provider or producer and customer. It is a realization among many industries such that the survival of businesses highly depends on the extent to which quality of products and services are brought to the doorsteps of the customer. Thus the continuous survival in the market place depends on the quality of service. Gržinic (2007) asserts that service quality is internationally used to increase competitiveness, improve effectiveness and ensure flexibility of a business entity. However, the intangibility, perishability, product heterogeneity and simultaneous production and consumption nature of services and considering that services cannot be stored, disappear in use, and require personal contact make service quality difficult to define (Sasser, Olsen & Wyckoff, 1978).

In industries, when service provider involvement is relatively high, the perception of customers towards service quality could be greater though (Augur, Nataraajan & Jahera, 1999) are of a divergent view. Generally, improved service quality brings customer satisfaction, attraction, loyalty, commitment; and increased market share and profitability (Izoko & Ogba, 2015; Kumari & Rani, 2011). It has also been found that as service quality improves, customer satisfaction also has a bearing on certain behavioral responses such as customer retention, relationship marketing, customer loyalty, positive word-of-mouth marketing and increased customer tolerance (Newman, 2001; Goode & Moutingo, 1995). Thus improved customer service quality is inextricably linked to these behavioral outcomes. In spite of these benefits there has been the difficulty in defining and measuring service quality (Singh & Khurana, 2011). However, majority of studies have made use of SERVQUAL to measure service quality in many industries and sectors without making use of other techniques such as SERVPERF. Thus the aim of the study is to measure service quality in the Motor Vehicle Tire Repair Industry in Ghana using service performance (SERVPERF) as a measurement technique (Lee, 2011). As an exploratory work the study sought to identify the perception of customers in terms of the attributes of service quality, viz, Tangible, Reliability, Responsiveness, Assurance and Empathy as a contribution to the debate and discussion concerning service quality measurement. The relationship between service

quality and customer satisfaction was also established. Considering that the area of service quality in the tire maintenance and repair industry in Ghana has been investigated though it contributes significantly to the Gross Domestic Product of the country as MSME (Quartey, 2010), findings of the study will also serve as a database for both policy decisions and implementation for industry players.

## **2. Literature Review**

The literature review section deals with three subsections. The first section concerns definitions, tire specifications, tire description and tire maintenance and repair. The second subsection talks about models for measuring service quality with particular reference to SERVQUAL and SERVPERF models. The third and final subsection dilates on the relationship between service quality and customer satisfaction.

### **2.1 Vehicle Tire Elements**

A vehicle tire may be defined as a thick rubber ring, functionally inflated with air that fits around the edge of a wheel of a moving vehicle, acting as a cushion and damper between the wheel and vehicle on one hand and the road on the other. Automobile tires are designed using alphanumeric code systems. Coding systems may specify tire dimensions and other important deficiencies such as load-bearing ability, maximum speed as well as ratings for tread wear, temperature resistance and traction based on the Uniform Tire Quality Grade (UTQG) ratings. Different jurisdictions such as Tire and Rim Association of American, Inc., Office of Vehicle Safety Compliance, a component of the Department of Transportation in the United States; the Motor Vehicle Tire Safety Regulations SOR 95-148 in Canada and the European Tire and Rim Technical Organization in Europe all have different standards (Tire Code, 2014).

Geometrical and usage data of automobile vehicle tires are expressed in various ways. However, notations generally include characteristics of loading, nominal width, height of sidewall, and type of tire, wheel size, load and speed. For example, a tire labelled P195/55R1685H is a passenger vehicle tire with a nominal width approximately 195mm at the widest point; and a sidewall 55% (aspect ratio) of the width (107mm); a wheel diameter of 16 inches (410mm); a load index of 85 (maximum load of 515kg per tire) and a speed index H (maximum permitted speed of 210km/h); the tire being a radial type. On the other hand a tire labelled 37x12.5R17LT is described as a radial tire with 37in (940mm); diameter, 12.5in (320mm) cross section; 17in (430mm) wheel diameter and suitable for light truck vehicle (Tire Code, 2014).

Automobile tires may be described as All Terrain (AT) or Mud Terrain (MT) or Street. Street tires are purposely for tarred roads. The purpose of All Terrain tires is to provide better performance on road and off road conditions. They perform well on various terrains such as sand, rocks, in the mud and paved roads as well. Mud Terrain tires are also classified in terms of construction, the tire purposely for mud roads. In this regard a tire may be bias-ply, diagonal or radial. Bias tires are more suitable for two trailers, farm equipment, racing purposes and extreme terrain occasions. They may be referred as cross-ply tires. On the other hand, radial tires have multipurpose usage. They are more resistant to punctures, less prone to punctures, tear and flats leading to better performance and minimum tread scrubs thus increasing tread life. They also hold better to the road thus increasing road traction, even off road. Street tires are purposely for tarred roads. Standard vehicle tires, comprising parts such as steel belts, body plies and bead bundle, are made from vulcanized tire through vulcanization, a process whereby heat is generated to fuse the various tire components

together. Vulcanizing is also used in tire repair, particularly with inner tubes. Vehicle tire repair include inner tube and the outer casing; that is, for both tubeless (TL) and tube-type (TT) tires (i.e. tire and inner tube).

A flat tire is a pneumatic tire that is deflated, causing the rim of the wheel to move on the tire tread or the ground instead of air. The result may be loss of control or permanent tire damage or both. Flat tire condition may be caused by puncturing of sharp objects such as nail or broken bottles, allowing air to escape and deflating the tire either rapidly or slowly (Fabric Inner Tube Lessons, 1935) Flat tire may also be caused by damage or failure to the valve stem; collision resulting in ripping of tire, or separation of tire; excessive wear of tire tread resulting in explosive tire failure. Though worn tread tires must be replaced, those with slow leaks could be repaired and re-inflated. Many a driver would send a faulty tire to a repairer for correction. It is the duty of the repair service provider to provide quality work in order to ensure customer satisfaction. As an industry the tire repair industry in the country must also ensure that road carnage and property damage are reduced to the minimum through improved quality of service they render to customers.

## **2.2 Service Quality Measurement Techniques**

Generally, service quality has been observed to be one of the most debated and researched concept in current research literature (Ananth, Ramesh & Probaharan, 2010). Many authors have variously defined service quality. Crosby (1984) defines service quality as a measure of conforming to the requirements of service. Juran (1988) also considers service quality as an act of performing such that the service provided enables an item to be fit for its purposed usage. According to Osman and Omar (2007), quality is in the eyes of the customer though they agree that it is important to both producer and customer. Sasser, Olsen and Wyckoff (1978) define service as a commodity that lacks storage and extinct in usage due to their absolute heterogeneity; simultaneity in production and consumption; perishability, intangibility as well as demand on personal contact.

Hoffman and Batesan (2010) also define service quality as a long term attitude formed from total evaluation of an organizations performance. But Grönroos (1984) defines perceived service quality as an outcome of evaluation arising from comparison between customer expectation of service provided and customer perception of service delivered. Lovelock, Wirtz and Chatterjee (2011) defines service quality as the extent to which customer expectations consistently meeting or exceeding customer expectation. Parasuraman, Zeithaml and Berry (1985) defines service quality in global context; that it is an attitude involving total excellence of service; that it is the degree of discrepancy between customer perceptions and customer expectations. They are of the view that it is a form of attitude which is an outcome of the measurement of the difference between customer expectation and customer perception and that it is related to customer satisfaction (Parasuraman, Zeithaml & Berry, 1988). The definition of quality service and the consequential proposition of SERVQUAL (service quality) by Parasuraman et al (1988) as a measurement tool of service quality have been accepted in many quarters of research. Nonetheless, Lewis and Mitchell (1990) define service quality as the degree to which a service meets customer needs.

The SERVQUAL scale by Parasuraman et al, (1988) is made of 22 contextual attributes for evaluating customer expectations and perceptions of service quality. Though the scale has five condensed generic dimensions, the original dimensions were ten. Each contextual dimension sums to the 22-item scale contributing differently to each generic score. The five generic factors are stated as: Tangibles (the physical facilities, equipment and appearance of

service personnel); Reliability (the ability to deliver service accurately and dependably); Responsiveness (the willingness to assist customers and deliver prompt services); Assurance (courtesy and knowledge of employees and their ability to ensure customer confidence and trust) and empathy (individualized attention and care provided by the organization to customer).

Though SERVQUAL has been widely used by researchers (Shalim 2007) and Robinson (1999) were of the view that, consensus of opinion is not enough with much disagreement about how service quality should be measured. Shahin (2007) agrees that though many attempts have been made to measure service quality, how it should be measured has not been generally agreed. For example; Cronin and Taylor (1992) observed that, the scale cannot be universally accepted, as a result of cultural differences, within industries, countries, regions, etc. (Carman, 1990; Cui, Lewis & Part, 2003). On the other hand, Limitations to SERVQUAL may be viewed conceptually and operationally. Conceptually, it was criticized that the SERVQUAL pattern was based on affirmation instead of understanding and that it is not supported by psychological, statistical and economic theories. The gap theory is also criticized since there is scanty evidence to support that perception-expectation gaps are true representation of customer evaluation of service quality. According to Carman (1990), there is controversy in the direction of SERVQUAL since it is related to the process of service provided and not the consequence of experienced service. SERVQUAL has again been criticized in terms of the link between its dimensions resulting in a high degree of inter-correlation between the generic dimensions.

Operationally, Cronin and Taylor (1992) have a beef with expectation as a measurement factor in addition to perceptions. They were of the view that in the evaluation process, customers rather consider standards of service quality due to ambiguity in the meaning of expectation. The conclusion was that total expectations of service quality could not be evaluated using SERVQUAL. For this reason, the contextual attributes measured using SERVQUAL, it was argued, cannot contain and justify the variability related to each of the five dimensions. Another criticism was that the ratings of an individual customer have been observed to vary from instant to another, suggesting the absence or limitation into the moment of truth. Carman (1990) was of the view that the administration of two sets of questionnaire, measuring expectations and perceptions differently, lead to confusion and boredom which could lead to non-factual evaluating. The development of SERVPERF as a measuring instrument for measuring service quality aims at reducing some of the limitations of SERVQUAL (Cronin & Taylor, 1992). It measures customer perception of the quality of service provided. Empirically it has been found to be superior to SERVQUAL as a measuring scale (Wang & Shieh, 2006; Jain and Gupta, 2004; Babakus and Boller, 1992). The present study therefore adopted the SERVPERF approach. The fundamental assumption of SERVPERF is the ability to measure expectations directly from consumers by comparing performance perceptions of service provided with expectations of the customer, automatically, through unitary scoring (Culiberg & Rojsek, 2010) of perceptions instead of dual-scoring when using the SERVQUAL approach.

### **2.3 Service Quality and Customer Satisfaction Relationship**

The provision of service quality certainly improves customer satisfaction (Ushanta, Wijeratne & Samantha, 2016). According to Ushanta et al (2016) there is a strong positive individual linear correlation between each service quality generic dimension and customer satisfaction. This relationship has been observed by many businesses and used as a competitive tool to improve effectiveness, (Silva, 2009). Parasuraman et al (1988) and Bahia and Nantel (2000)



similarly established a strong positive relationship between service quality and customer satisfaction. Customer service quality and customer satisfaction have some commonalities (Brady & Cronin, 2001) in view of the fact that customer satisfaction indicates the degree to which a products perceived performance matches the expectations of the patron (Kotler & Armstrong, 2012). Thus perceived service quality is an element of customer satisfaction (Zeithaml et al, 2009) and a determinant of customer satisfaction (Wang, Lo, & Hui, 2003). This relationship abounds in various service industries. Though poor customer satisfaction is an indication of poor quality work, there appears to be disproportionate studies on quality of service in the tire maintenance and repair industry despite its direct and indirect importance to human safety as well as economic and industrial development.

### **3. Study Design and Method**

The Central Region was selected due to its strategic location as a region between the national capital region (Greater Accra Region) and the booming oil region (Western Region). The population of the study was drivers and chauffeur who ply within the region. Multistep sampling technique was adopted. The judgmental sampling technique was used for the first stage to select four administrative districts due to population size, and consequential economic, commercial and industrial activities. These were Cape Coast Metropolis, Kasoa, Winneba, and Agona-Swedru Municipalities. These are the four most populous administrative districts in the region. The second stage involved purposive sampling to select ten (10) tire repair shops from each locality. The final stage employed accidental sampling to select six (6) customers from each repair shop. Data was collected from Monday to Saturday in the month of February, 2015, between the hours of 10.00 am and 2:30pm. Out of the 240 questionnaires distributed, 225 were used for the analysis due to missing data cases at a response rate of 93.75% (Cape Coast = 63; Kasoa =67; Winneba = 48; Agona-Swedru =56). Though accidental and purposive sampling techniques may be deficient when it comes to generalization, the relatively large sample size is likely to more than compensate for this limitation. The study ensured that no respondent completed more than one questionnaire to enhance reliability and validity of the results. It was also ensured that respondents had patronized the workshop more than a year since according to Katariina, Sudhir, Hannu & Nina (2008), consumers' customization with service is a cardinal element of perception with respect to its quality (Elistina & Naemah, 2011). The SERVQUAL questionnaire instrument of Parsuraman et al (1988) consisting of a 22-item Likert scale, was used to collect the data though only perceptions on service performance (SERVPERF) was measured. In cases where customers found it difficult to read the questionnaires a translation into vernacular was made since the instrument language was English. As two-section document, the first section of the questionnaire requested for customer demographic profile while the second section demanded customer perceptions on service quality and customer satisfaction. Thus section 1 and section 2 comprised 5 items and 23 items respectively; item 23 being on overall customer satisfaction.

The 22-item service quality contextual dimensions comprised dimensions of tangibles (4 items); reliability (5 items); Evaluation of service quality and customer satisfaction was made using a seven point Likert scale ranging from strongly disagree = 1; moderately disagree = 2, slightly disagree = 3; neutral = 4; slightly agree = 5; moderately agree = 6; to strongly agree = 7. Data was processed and analyzed using the statistical package for the social sciences (SPSS, Version 21). Analytical tools employed were descriptive statistics, Pearson's product moment correlation and regression analysis.

#### **4. Results and Discussion**

This section presents respondents' demographic characteristics and summary of perceptions. It also discusses the results. Additionally, it defends the reliability and validity of the results of the study. The scale dimensions were first examined for reliability and multi-collinearity in a pilot study involving 22 respondents. The corrected item-total correlation ranged between 0.47 (for tangibles) and 0.826 (for reliability). Cronbach alpha also ranged between 0.769 (for Reliability) and 0.865 (for Tangibles). The overall Cronbach alpha was 0.849. Since corrected Item-Total correlation for all dimensions were greater than 0.3; overall Cronbach alpha greater than 0.7 and Cronbach alpha for individual dimensions were all greater than 0.7, none of the dimension was excluded in the analysis. The scale was thus reliable (Pallant, 2005) (Refer table 1). With five dimensions it was also pertinent that multi-collinearity between the independent variables, viz, Tangibles, Reliability, Responsiveness, Assurance and Empathy were tested (Velnanpy & Achchuthan, 2013; Kajanathan & Achchuhan, 2013).

The study gave all tolerance values as less than 1. Variance Inflation Factors (VIFs) were also less than 10; and Durbin-Watson factor of 2.077. This shows that there was no multi-collinearity among the variables and that there was no serial correlation between any two variables (Pallant, 2005) (Tables 2). In addition to this, internal validity was proven as the study met the conceptual and scientific methods and requirements employed by reliable and valid studies and researchers (Payne & Payne, 2004; Bailey, 1994). Out of the 240 respondents, 18 (8%) were female with majority, 207 (92%) being male. This is comparable to the respondents' distribution in the work of Izogo & Ogba (2015) on a study "Service quality, customer satisfaction and loyalty in the automobile repair service sector" where the female respondents' was 18.6 percent and male 81.4 percent. The authors explained that this is culturally influenced since most men would rather take their wives' vehicles for repair and maintenance on their behalf.

Customer age ranged between 29 years and 68 years. The mean and median ages were 45.8 and 46.1 respectively. Monthly income was between GH¢600 and GH¢ 2519.7 with respective mean and median income being GH¢1363.87 and GH¢1180. Majority of respondents (78.6%) had Basic school as the highest educational attainment; 5 percent had Sec/Tech/Voc; and 16.4 percent had tertiary education as the highest educational attainment. This may be due to the fact that most of the respondents are not actual vehicle owners but employees employed to drive vehicles for monthly income. This corroborate with the finding (Baffour-Awuah, 2015) that most driver-employees have lower levels of educational attainment and lower income levels.

##### **4.1 Customer Perception of Service Performance**

Table 2 also displays the mean scores of the five dimensions of service quality with the corresponding standard deviations. The minimum and maximum means of perception were 5.0156 and 5.0967 respectively, representing tangibles and assurance. The others were empathy (5.0944); reliability (5.0604) and responsiveness (5.0467) in that order. Hence the most superior dimension is assurance. This implies service providers in the tire maintenance and repair industry in the study area have knowledge to answer questions of customers, are consistently courteous towards customers; customers feel safe leaving vehicles/tires with repairers; and that repairers are trustworthy. On the other hand customers were of the view that repairers are relatively least doing well since equipment's of repairers are not modern looking; physical facilities at the shops are not visually appealing; employees do not appear neat; and that materials used to provide services are not visually appealing in the shops. The

overall perceptions of service quality in the tire maintenance and repair industry were 5.063 implying that customers slightly agree that service provided are satisfactory. Minority of the respondents slightly agreed to this satisfaction level since the range of standard deviation for the means (0.76057-0.66844) was 0.092, the average being 0.7168. However the mean perception score when customer satisfaction was measured directly was 4.8933. The standard deviation was 0.74833. This means customers were slightly satisfied with service provided (Compare 5.063 and 4.8933) though the direct score was lower than the indirect score using the SERVPERF scale. This is an indication that there is a relationship between service quality and customer satisfaction.

#### **4.2 Relationship between Service Quality and Customer Satisfaction**

The relationship between service quality and customer satisfaction was further assessed applying Pearson's product moment correlation technique. Table 3 depicts the correlation coefficients between service quality dimensions and customer satisfaction. With the exception of tangibles which gave a medium correlation coefficient (0.488), reliability (0.788), responsiveness (0.736), assurance (0.692), and empathy (0.560) all showed strong positive relationship with customer satisfaction. The relationship between reliability and customer relationship was the strongest, followed by responsiveness, assurance and empathy in that order.

The results imply that as perceived level of reliability increases so does customer satisfaction. This shows that as the level of reliability increases customer satisfaction also increases. It can therefore be concluded that knowing reliability can assist improve customer satisfaction by 78.8 percent. A test of significance indicated that the relationship between individual service quality dimensions and customer satisfaction was significant at 0.01 (2-tailed). Similarly, as perceived level of responsiveness increases so does customer satisfaction. The results indicate that as the level of reliability increases customer satisfaction also increases. It can therefore be surmised that knowing responsiveness can assist improve customer satisfaction by 73.6 percent. A test of significance indicated that the relationship between individual service quality dimensions and customer satisfaction was significant at 0.01 (2-tailed).

The study outcomes also indicate that as perceived level of assurance increases so does customer satisfaction. This means that as the level of reliability increases customer satisfaction also increases. It can therefore be suggested that knowing assurance can assist improve customer satisfaction by 69.2 percent. A test of significance showed that the relationship between individual service quality dimensions and customer satisfaction was significant at 0.01 (2-tailed). Further assessing the results between empathy and customer satisfaction, the study portrayed a strong and positive relationship. The outcome was that as perceived level of empathy increases so does customer satisfaction. This means that as the level of empathy increases customer satisfaction also increases. It can therefore be concluded that knowing empathy can help improve customer satisfaction by 56 percent. A test of significance indicated that the relationship between individual service quality dimensions and customer satisfaction was significant at 0.01 (2-tailed). The relationship between overall service quality and customer satisfaction was also found to be strong ( $B=0.889$ ) and significant ( $p=0.0001; \alpha < 0.01$ ). Since all correlation coefficients were positive it can be inferentially suggested that knowing overall service quality can improve estimates of customer satisfaction by 88.9 percent.

Multiple linear regressions were also employed in the study to determine the relationship between service quality and customer using a single model. Table 4 shows the coefficients of



the multiple regression analysis. This confirms that reliability dimension (0.446) provides the largest contribution to customer satisfaction. This is followed by responsiveness (0.336); assurance (0.108) and tangibles (0.189), indicating that they contribute positively to customer satisfaction. Empathy, however, does not contribute to customer satisfaction (-0.51). Table 5 indicates the model summary of the regression analysis. The model explains 73.7% of the variance in customer satisfaction further corroborating the relationship between service quality and customer satisfaction. Analyzing the variance (ANOVA) between service quality dimensions of empathy, responsiveness, tangibles, assurance, and reliability and the constant on one hand as predictors, and customer satisfaction as dependent variables, the F-factor for the model was significant at ( $p=0.0005$ ;  $N=225$ ;  $F=122.898$ ), depicting that the overall model is statistically significant. The linear relationship between overall service quality and customer satisfaction was given by model equation  $y=1.085 x - 0.628.13$  based on unstandardized coefficients, where  $y$  is customer satisfaction and  $x$  the overall service quality.

## 5. Conclusion

The main objective of the study was to determine the influence of service quality on customer satisfaction in the vehicle tire maintenance and repair service industry within the Central Region of Ghana. The mean score for the five service quality dimensions: tangibles (5.0156); assurance (5.0967); empathy (5.0944); reliability (5.0604) and responsiveness (5.0467). The overall service quality mean was 5.065. The mean score for customer satisfaction was 4.8933. All the five dimensions of service quality indicated strong and positive linear influence on customer satisfaction except empathy, which was negative, using a single model. Tangibles had a relatively weaker but positive relationship with customer satisfaction. The study has revealed that the relationship between reliability, responsiveness, tangibles and assurance on one hand and customer satisfaction on the other is generally strong, positive and significant. Generally, the result of the study has therefore confirmed the fact that service quality is an influencer of customer satisfaction. The study also confirmed the use of SERVPERF scale as a suitable and valid scale for measuring service quality and for helping to determine the relationship between service quality and customer satisfaction. The paper recommends that enterprise owners in the industry should upgrade their equipment, improve upon physical facilities, provide neat working apparels and provide appealing working materials. The study has also revealed that improved service quality has influence on customer satisfaction to a large extent and that over 80% of customer service quality dimensions using the SERVPERF relates positively with customer satisfaction, 60% being significant. Future studies may dwell on a comparative analysis between SERVPERF and SERVQUAL with emphasis on other regions in Ghana.

**Table 1: Characteristics of reliability of questionnaire**

Variable	Cronbach's Alpha	Mean	Corrected item – total correlation
Tangibles	0.865	5.0156	0.470
Reliability	0.769	5.0604	0.826
Responsiveness	0.831	5.0467	0.610
Assurance	0.802	5.0967	0.723
Empathy	0.812	5.0944	0.683

**Source:** Study data, 2016.

**Table 2: Characteristics of multiple collinearity of variables**

Variable	Collinearity	Statistics	Mean	Standard Deviation
	Tolerance	VIF		
Tangibles	0.709	1.410	5.0156	0.70417
Reliability	0.227	4.403	5.0604	0.76057
Responsiveness	0.524	1.907	5.0467	0.75226
Assurance	0.381	2.625	5.0967	0.66844
Empathy	0.400	2.500	5.0944	0.69868

Source: Study data, 2016.

**Table 3: Correlation results between service quality dimensions and customer satisfaction.**

Service quality dimension	Pearson Coefficient	Correlation	Sig (P)
Tangibles	0.488		0.000
Reliability	0.788		0.000
Responsiveness	0.736		0.000
Assurance	0.692		0.000
Empathy	0.560		0.000

Source: Study data (2015) 15/ Correlation is significant at the 0.01 level (2 toiled)

**Table 4: Model of multiple linear regression between service quality dimensions and customer satisfaction.**

Model	Unstandardized coefficients		Standardized coefficients	t	sig	Correlations		
	B	Std Error	Beta			Zero order	Partial	Part
(Constant)	-0.358	0.249		-1.435	0.153			
Tangibles	0.200	0.044	0.189	4.584	0.000	0.488	0.296	0.159
Reliability	0.439	0.072	0.446	6.138	0.000	0.788	0.383	0.213
Responsiveness	0.335	0.048	0.336	7.031	0.000	0.736	0.429	0.244
Assurance	0.121	0.063	0.108	1.920	0.056	0.692	0.129	0.066
Empathy	-0.055	0.059	-0.051	-0.932	0.352	0.560	-0.063	0.032

Source: Study data (2015)

**Table 5: Model summary of multiple regression relationship between service quality and customer satisfaction**

Model	R	R-square	Adjusted R square	Std. Error of the Estimate	Durbin Watson
1	0.859a	0.737	0.731	0.38794	2.077

Source: Study data (2015);

- Predictors: (Constant), Empathy, Responsiveness, Tangibles, Assurance, Reliability.
- Dependent Variables: Customer Satisfaction.

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