



St. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

INSTITUTE OF QUALITY AND PRODUCTIVITY MANAGEMENT

**ASSESSMENT OF SERVICE QUALITY FOR IMPROVED
CUSTOMER SATISFACTION IN ETHIOPIAN COFFEE
QUALITY INSPECTION AND CERTIFICATION CENTER:
CUSTOMERS PERSPECTIVE**

BY

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ID: SGS/0417/2013A

**MAY 2022
ADDIS ABABA**

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ENDORSEMENT

I confirm that the thesis entitled “Assessment of Service Quality for Improved Customer satisfaction in Ethiopian Coffee Quality Inspection and Certification CENTER: Customers Perspective” has been supervised by me and forwarded for a defense examination.

Matias Taye

Advisor

Signature & Date

DECLARATION

I, the undersigned declare that this thesis entitled “Assessment of Service Quality for Improved Customer Satisfaction in Ethiopian Coffee Quality Inspection and Certification Center: Customers Perspective”, is my original work prepared under the guidance of Matias Taye. All sources of materials used for the thesis have been acknowledged. I further confirm that this study has not been submitted in part or full for any degree completion to any University or Collage.

MERON BELAYNEH

Signature_____

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Regards,

Meron Belayneh Erko

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ACRONYMS AND ABBREVIATIONS

CQICC	Coffee Quality Inspection and Certification Center
CLU	Coffee Liquoring Unit
SPSS	Statistical Package for the Social Science
SD	Standard Deviation
SERVQUAL	Service Quality Scale/ Model
SERVPERF	Service Performance Scale/Model
ISO	International Organization for Standardization
QSAE	Quality and Standards Authority of Ethiopia
EQA	Ethiopian Quality Award

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ABSTRACT

The study was conducted on assessment of service quality for improved customer satisfaction in the case of Ethiopia Coffee Quality Inspection and Certification Center (CLU). The study investigated the relationship and effect of service quality dimensions on overall service quality and overall customer satisfaction with suggestion for improvement on service quality dimensions from the case of CLU customers. Primary data were collected from randomly selected 70 sample CLU inspection and certification service customers. The study applied the modified SERVPERF Model. Besides the five SERVPERF functional dimensions (empathy, reliability, tangibles, responsiveness and assurance), one technical service quality dimension (Consistency), according to Grönroos Model, was also considered. The study incorporated descriptive and inferential statistical analysis using SPSS Version 20 addressing the six independent variables. The findings showed that CLU is providing good quality service that satisfied its customers. All service quality dimensions were found to have direct and significant moderate to weak association with overall service quality and customer satisfaction. From all service quality dimensions, only consistency was found as a statistically significant aspect impacting customer satisfaction while tangibility and interaction of tangibility with empathy were also found to have significant impact on overall service quality. For improved customer satisfaction, it has also been found that while maintaining the quality of the other dimensions; CLU needs to improve the empathy and tangibility dimensions by providing modern service with modern physical facilities and equipment and by assigning employees that give individual attention for customers. Moreover, it was also found that studies on inspection and certification service quality need to incorporate additional sector specific technical and functional service quality dimensions that would also impact customer satisfaction. In this regard, for CLU customers' perspective, service quality dimensions efficiency, transparency, fairness/impartiality, and agility were suggested for consideration.

Key words: Service quality, Customer Satisfaction, Technical service quality dimension, inspection and certification service, SERVPERF, CLU

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Ethiopia is the birthplace of coffee and the current source of the best coffee in the world (Getachew, 2017; Habtamu, 2019). Coffee generates about 25%-30% of total export and securing about 15 million people's livelihoods in Ethiopia (Demissie, Tsegaye, Beshah and Ebinger, 2021; Teferi,2018). However, for last 5 decades, economic gain generated from coffee industry in general and coffee export in specific has been limited and showed trend of relative decline. Market share of coffee in the international market has not been exceeded 4% and stayed swinging around 3% for long time (BERIHUN, 2021; Berhanu, 2017). This is partly due to quality control and inconsistency of coffee quality (Adugna, 2019; Boansi and Crentsil, 2013; Hana, 2018; Argaie , 2021; David ,2013; Berhanu,2017). To curve this situation Ethiopia developed new coffee marketing and quality control proclamation No.1051/2017 as policy intervention (Adugna,2019). There are also many studies conducted related to product, coffee, quality (Bealu, 2021; Mikru,2019; Habtamu, 2019; Yishak, Shimelis and Tarekegn, 2019; Nguyen, Nguyen and Bosch, 2015) with no attention on significant contribution of our coffee quality infrastructures service quality to attain consistency in our coffee quality.

According to the International Organization for Standardization (ISO) (2000), Quality is described as the ability of a set of inherent characteristics of a product, system or process to fulfill requirement of customers and other interested parties. Comparably quality and standards authority of Ethiopia (QSAE) (2000) also defines quality as it is conformance with requirements or fitness for use in which the parties involved in the industry (customer, processor, supplier, etc) should agree on the requirements should be clear to all stake

holders involved in the process. Thus, our study should go beyond product quality to the system and process undertaken to fulfill the requirement of customer and stake holders and insure quality consistence to increase the industry competitiveness. Do we have the conforming institutions? If they exist, are they functioning accordingly? what is their level of performance? This study is one of the initiatives to check the service quality of the only export coffee quality conforming body to investigate institutional improvement inputs from customer perspective.

Quality of service provided have a direct influence in creating a sustainable local economy, meaning that improving service quality to understand customer needs can enhance sustainable economic growth and competitive advantage (Srnita ,2019). The survival of any organization in a highly competitive environment depends on its ability to provide the best service quality to its existing customers as the quality of service is a key factor in the success of any organization. It is well established that the measurement of service quality is an important procedure for the improvement of the performance of any organization. Facts indicate that more attention is needed toward developing an industry-specific scale for measuring service quality from the end-user perspective within specific-industry contexts (Kaur, and Sharma, 2014).

According to Cui, Liu and Qiu (2017) the management of service quality is crucial for service providers to improve customers' satisfaction, loyalty and company's profit. But the measurement of service quality is much more complicated compared to the product quality measurement. There are many affords to measure service quality. SERVQUAL became a widely used tool for measuring service quality. Researchers have been using SERVQUAL and modifying it to make it adaptable to the needs of services under consideration. According to Kaur, and Sharma, (2014) SERVPERF is a new service quality measurement tool developed by considering the criticism on SERVQUAL. This model considered 22 items of SERVQUAL perception statements. This research has adapted the SERVPERF methodology to assess the service quality of Coffee Quality Inspection and Certification Center (CLU). Although a significant body of academic literature exists on service quality within diverse organizations, the SERVPERF hasn't been applied to certification & inspection industry so far. Thus, empirical investigation of the SERVPERF model in inspection and certification service industry has been undertaken.

Asubonteng, McCleary & Swan (1996) recommended customized testing of dimensions relevant to each sector. Kaur, and Sharma (2014) also suggest industry-specific instrument of measuring service quality results in correct assessment of service quality perceptions. Thus, in this study besides the five functional dimensions of service quality being considered in SERVPERF the sixth dimension as service outcome, consistency of the service result, was evaluated. Since inconsistency coffee quality is one of the limiting factors to meet international market requirements (Hana, 2018) there is a need to investigate this dimension. The service quality of inspection and certification body should be evaluated from its capability to provide less variable service that also influences the result of inspect and certification provided. It is to mean consistently grade 1 product should be certified as grade 1 not as 2 or 3. To know the effect of the suggested industry specific instrument, consistency, data were collected both on the common SERVPERF instrument and the specific instrument and the result of service quality perceptions were analyzed and presented as an input for existing literature.

Service quality has become an important parameter to identify the customer satisfaction from the services. It has been observed that if a customer perceives service quality of the organization as positive, the level of satisfaction will also be positive. This construct is valid because the interactions the customers have with the organization during the service encounter in terms of physical environment and interpersonal dealing determines whether or not a consumer gets a delightful service experience and if he will avail the service in future as well (Kaur, and Sharma, 2014). Researchers have explored the possibility of relationship between service quality and customer satisfaction in various sectors of service industry and revealed similar findings but with a difference on the significance of service quality dimensions on customer satisfaction in different sector. Accordingly, this study also identified service quality dimensions that have significant relation with inspection and certification service customers' satisfaction and overall service quality from CLU case.

1.2 Statement of the Problem

Ethiopian export-import sector has several quality issues. Studies show a total of 272 million USD of which 99% is due to the non-conformance cost of the export product incurred annually (Birhanu, Ephrem & Assefa (2015)). According to these authors the nonconformance cost was much higher in the coffee market when compared to the other export products. On average, it constituted more than 269 million US dollars. The average annual sale from coffee was estimated to be more than 650 million US dollars. This suggests that the nonconformity quality cost of coffee export market was much severe when compared to the average annual income that the country gets from the export market. Although coffee constituted the majority of Ethiopia's export value, customers in the world are also becoming more and more sensitive to the quality of products and services, as a result of which the government is largely investing in quality conformance of coffee. Unfortunately, the nonconformance cost of coffee became higher than that of its conformance cost. This is not good news for the Ethiopian export market since failure costs are by nature more dangerous than that of conformance quality costs which are basically incurred to protect the occurrence of nonconformance quality costs. This justifies that merely product, coffee, quality improvement efforts should gear to investigation and mitigation of technical and institutional quality management problems in the sector particularly starting from conformity (testing, inspection and certification) assessment body will be an important measure and entry point.

Demissie, Tsegaye, Beshah and Ebinger (2021) on their study on Quality infrastructure services capability assessment in the coffee value chain they have investigated the association of quality service with defects in the sector. They have found out lack of accreditation has the highest contribution followed by conformity and metrology with a share of 83.3%, 75%, and 54% for defects points. Farther more they have recommended issues like control of temperature and humidity in storage and transport, lack of soil nutrition testing, inspection performance, and commitment to standards implementation are issues that needs to be improved to solve quality problems (Demissie, Tsegaye, Beshah and

Ebinger, 2021). Shiferaw (2021) on his study presentation on roasted coffee export value chain in Ethiopia also pointed out the treat of increase in the number of complaints from clients regarding the coffee grade. He recommends for stakeholders' effort to improving the quality controls and grading homogeneity in the green coffee value chain to support the efforts of coffee roasters in accessing international markets.

This finding is a great venture which indicates that there is a need to investigate the development and service quality improvement of our existing quality infrastructures in the sector than only to focus on product quality improvement to get out of quality crisis the sector is facing. The national quality infrastructure which is closely working with coffee industry by inspecting and providing certification for export coffee is Coffee Quality Inspection and Certification Center, Coffee Liquoring Unit, (CLU). Thus, this study has assessed the service quality and customer satisfaction of this pivotal conformity body in coffee sector from customers' perspectives.

Most literatures on service quality recommend for the need of sector specific service quality model testing and modification of dimensions (Kaur and Sharma 2014). Assessment of service quality of inspection and certification sector with commonly used service quality models is very rare (Liu, Cui , Zeng,Wu, Wang, Yan and Yan, 2015; Cui et.al, 2017). Unlike other service sector it is less researched one. Thus, this study was conducted to fill the theoretical gaps seen in the study of inspection and certification service sector.

Service quality and customer satisfaction are very important concepts that companies must understand if they are to grow and remain competitive in the business environment, and it is very important for them to know how to measure these constructs from the customer perspectives. Measurement allows for comparison before and after changes, for the location of quality related problems and for the establishment of clear standards for service delivery. This study focuses on assessing the service quality dimensions and customer satisfaction in CLU. Accordingly, the most significant service quality dimensions at inspection and certification center and its relationship with customers' satisfaction were identified. The study has contributed the finding to the existing literatures about important

quality dimensions in inspection and certification institution. It also helps to draw practically suggestions for improvements of CLU quality service delivery in order to increase the coffee sector competitiveness in global market and satisfy customers.

1.3 Basic Research Questions

The central research questions that this paper aims to address were:

1. What are the dimensions impacting the service quality of the Coffee Quality Inspection and Certification Center?
2. How are service quality dimensions linked with inspection and certification overall service quality and customer satisfaction in coffee sector?
3. What improvements can be incorporated in the service quality dimensions of the coffee inspection and certification services study?

Together, these three research questions provide a perspective on the service quality and customer satisfaction of Ethiopia Coffee Quality Inspection and Certification Center, the link and effect service quality dimensions have with service quality and customer satisfaction and suggest points of improvement on service quality dimensions.

1.4 Objective of the Study

The main objective of the study was to assess the service quality of Ethiopia Coffee Quality Inspection and Certification Center for customer satisfaction and service quality dimensions improvement while the specific objectives were:-

1. To assess the service quality of Ethiopia coffee Quality Inspection and certification Center from customers perception
2. To identify quality service dimensions that should be improved to better satisfy the customers
3. To establish a link between service quality dimensions and overall service quality and customer satisfaction

4. Propose improvements of service quality dimensions for future inspection and certification service quality and customer satisfaction study

1.5 Significance of the Study

This study has assessed the quality of service provided by CLU and its effect on customer satisfaction. Most literatures on service quality recommend for the need of sector specific service quality model testing and modification of dimensions. Accordingly, this research has theoretical relevance by testing SERVIPERF in assessment of service quality of inspection and certification sector. Besides commonly measured 5 functional dimensions in SERVIPERF one technical dimension which was valuable for measuring service quality of conformity assessment body like CLU were considered in the study. Service quality dimensions which have influence on satisfaction of customers of inspection and certification service have been identified.

Findings which shed light on future study of inspection and certification sector and contribute new knowledge to the existing service quality literatures in the sector were presented.

The study practically provides benefits for the coffee sector by providing institutional improvement input for CLU from the measured service quality dimensions and customer satisfaction outcomes. The finding of the study will be used as an input for top managers of the CLU for their future service related decisions making to satisfy their valuable customers. It also allows the stakeholders to have knowledge on where the enterprise stands in the eyes of its customer. For instance, as employees are one of the stakeholders, it will help them to evaluate their service deliveries through the eyes of the customer. Coffee & Tea Authority as an organization established to support the performance of the sector it will use the research output to render the required support for CLU. Moreover, this study will be used as an input for other researchers conducting related research in inspection and certification sector service quality and customer satisfaction.

1.6 Delimitations, Limitation and Scope of the Study

The Study was delimited to customers of Coffee Inspection and Certification Center that exists in Addis Ababa. Though there is another branch of CQICC out of Addis, the study is delimited only in the Addis Ababa main branch customers. To get the information about the present service quality of the center, coffee processor and exports who are active user of the service within the last one year and those who can be reached with email was intended to get considered. Due to the lack of sufficient time and money to access the other branch of the organization and contact respondents at their respective office. According to Coffee and Tea authority experts the study respondent was less responsive for email communication. In line with this suggestion the sent email to 107 customers was not responded by any. Thus, a shift to random sampling of customers who comes to get the service during data collection period was done. During data collection most of the customer from coffee exporters firms was in a rash with different local and international commitments they have with export transistors, bank permit and importers after they get the inspection and certification result from CLU. Thus, it was challenging to share their rash time and let them patiently fill 34 items containing survey instrument.

Even though there were different models and combination of models developed by different researchers and authors to study service quality, this paper used modified SERVPERF model (Cronin and Taylor, 1992). SERVPERF is selected than the most commonly used service quality model, SERVQUAL, due to many criticisms on the model by previous researches. SERVPERF service quality dimensions were adapted according to Gro'nroos's service quality model (Kang and James, 2004) to functional and technical dimensions. Due to tangible character of the service quality of inspection and certification sector unlike most service sector the technical dimension that measure the out came of the service is considered. Thus, the service quality dimensions proposed for this study were six. These include five functional service quality dimensions of SERVEPERF (tangibility, reliability, responsiveness, assurance, empathy) and one technical dimension (consistency). Overall service quality and customer satisfaction also measured, described, correlated and regressed with the six service quality dimensions.

As per our culture it was not a norm to genuinely judge someone in front of him. For better customers privacy the data should have been collected outside CLU compound. But due to limitation of time and money to contact the customer and their association at their respective office the data collection was done at CLU by informing its confidentiality to each respondent.

1.7 Definition of Terms

Assessment

It is the act of judging or deciding the amount, value, quality, or importance of something (Cambridge Dictionary)

Service

Service is process consists of a set of activities more or less intangible. Service is activity or benefit offers one party to other party (Sehhat, Ehsanfar and Aslebagh, 2012). Supply of high quality product and services to customers a continuous basis, makes creating higher competitive advantages such as competitive barriers, increase customer loyalty, production and supply differentiated products, reduce marketing costs and determine higher prices for companies.

Service quality

Service is an intangible concept, and quality is a relative concept. It is due to this paradox that service quality is difficult to define. There is no single definition of service quality that can universally hold good for all service settings. In some settings, service quality may be defined by service specific attributes, in some cases it may be experiential, in some it may be behavioral, in some it may be operational, yet in some it may be technical (Kamakoty and Sohani, 2016). Service has quality that if can satisfy the customer's needs and demands, and the provided service consistent with customer expectations or will be beyond it (Marhat, Masoud and Mona, 2013). Christian Gronroos suggested that the quality of

service as perceived by the customer has two dimensions - technical or outcome dimension and the function of process related dimension.

Service quality dimensions

According to Gronroos (1982) cited in Kang and James (2004, p.267)

Gronroos identified two service quality dimensions, the technical aspect ("what" service is provided) and the functional aspect ("how" the service is provided). The customers perceive what s/he receives as the outcome of the process in which the resources are used, i.e. the technical or outcome quality of the process. But s/he also and often more importantly, perceives how the process itself functions, i.e., the functional or process quality dimension. (Kang and James, 2004, p.267)

According to Ramya, Kowsalya and Dharanipriya (2019) the concept 'service quality' is not an independent term, means, its formation depends upon several factors or dimensions related to service and service firms. These dimensions are: -

Reliability

Reliability is defined as the ability to perform the promised service dependably and accurately. In broad sense reliability means, service firms' promises about delivery, service provisions, problem resolutions and pricing. Customers like to do business with those firms, who keep their promises. So, it is an important element in the service quality perception by the customer and his loyalty. Hence the service firms need to be aware of customer expectation of reliability. In the case of banking services, the reliability dimension includes - regularity, attitude towards complaints, keep customers informed, consistency, procedures etc.

Responsiveness

Responsiveness is the willingness to help customers and to provide prompt service. This dimension focuses on the attitude and promptness in dealing with customer requests,

questions, complaints and problems. It also focuses on punctuality, presence, professional commitment etc., of the employees or staff. It can be calculated on the length of time customers wait for assistance, answers to questions etc. The conditions of responsiveness can be improved by continuously view the process of service delivery and employees' attitude towards requests of customers.

Assurance

The third dimension of service quality is the Assurance dimension. It can be defined as employee's knowledge, courtesy and the ability of the firm and its employees to inspire trust and confidence in their customers. This dimension is important in banking, insurance services because customers feel uncertain about their ability to evaluate outcome. In some situations like insurance, stock broking services firms try to build trust and loyalty between key contact persons like insurance agents, brokers etc and individual customers. In banking services "personal banker" plays the role of key contact person. This dimension focuses on job knowledge and skill, accuracy, courtesy etc of employees and security ensured by the firm.

Empathy

Another dimension of service quality is the Empathy dimension. It is defined as the caring, individualized attention provides to the customers by their banks or service firms. This dimension try to convey the meaning through personalized or individualized services that customers are unique and special to the firm. The focus of this dimension is on variety of services that satisfies different needs of customers, individualized or personalized services etc. In this case the service providers need to know customers personal needs or wants and preferences.

Tangibility

The fifth dimension of service quality is the Tangibility which is defined as the appearance of physical facilities, equipment, communication materials and technology. All these provide enough hints to customers about the quality of service of the firm. Also, this dimension enhances the image of the firm. Hence tangibility dimension is very important to firms, and they need to invest heavily in arranging physical facilities.

Consistency

Consistency is the sixth dimension of service quality suggested by researcher. Consistency is defined as less variability on the result of equal grad certified product. For instance, for coffee product inspected and certified by the organization under study, Grade 2 coffee should be always labeled as grade 2 not as 3 or 1. It is to mean the issued certificate or result should be always conforming to the inspected and certified product real quality or grade.

Overall service quality

Overall service quality dimension holds comprehensive meaning of service quality from customers' perspective.

Customer satisfaction

Satisfaction is the consumer's fulfillment response. It is a judgment that a product or service feature, or the product of service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment (Oliver, 1997).

SERVPERF

SERVPERF is a service quality model which measures service quality by using the perceptions of customers (Cronin and Taylor, 1992)

Customer perspective

Is the measuring of service quality of an organization from its service users judgment or point of view. Though there are different kinds of customers this study considers only external customers. That means the user of the service of the Coffee Quality Inspection and Certification Center under study specifically coffee processors and exporters.

Coffee Quality Inspection and certification Center

According to Coffee Marketing and Quality Control Proclamation No.1051/2017 “coffee quality inspection and certification center” means a center established to inspect level of quality and issues certificates of quality and county of origin for raw, roast or roast and grind export coffee; “

1.8 Organization of the Study

The entire research was comprised of five (5) chapters. Chapter one contained background of the study, statement of the problem, basic research questions, objectives of the study, definition of terms, significance of the study, and delimitation/scope of the study. Chapter two reviewed theoretical and empirical relevant literatures related to the research topic and developed conceptual framework. Chapter three discussed the research method used for data collection, analysis, and reliability and validity of the study; while chapter four was about result and discussion, it present the data and show the responses to the area being investigated which were documented with the answer relating to the questions asked. Chapter five was comprised of summary, conclusions and recommendations. It included new knowledge drawn from the study, useful and constructive suggestion formulated for stakeholders and interested parties, followed by a critical reflection and suggestion for future research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Theoretical Framework

This chapter shows about the detailed theoretical concepts that the researchers believe they provide a good background to carry out the research work. Existing literatures related to service quality and customer satisfaction is assessed. Based on the review of related literature conceptual framework that shows the relationship of service quality dimensions with overall service quality and customer satisfaction developed.

2.1.1. Importance of study on service quality

Competitiveness in the global market is becoming fierce. The importance of quality management is growing to increase customers' satisfaction and as a result to win the market in the long term. However, developing economies like Ethiopia is challenged in their quality of products and services. According to Birhanu & Daniel (2014) quality management practice in Ethiopia manufacturing and service industries will be the future challenges of competitiveness. They also farther researched and identified the root causes of the quality problem to give directions for the policy makers, the industries and researchers. They recommend the need of future research in the field of quality management in Ethiopia to increase effectiveness and efficiency of the industries and make them more competitive in international markets. Specifically, research endeavors should concentrate on quality improvement in the service industries and in the sector of public administration. They farther remarked identification and awareness of customers' expectation are the starting points for embarking upon quality improvements. Thus, these

days' customers are in need of quality service that let them attain sustainable competitive advantage in the competitive business environment (Sureshchandar, Rajendran and Anantharaman, 2002).

2.1.2. Service quality

The up-to-date definition of quality that got the attention in quality literature is providing products or service features that customers need. These features lead to customer satisfaction and exceeding customer expectations, which, in turn, lead to increased revenue for the producer. Service quality is defined as 'consistently meeting or exceeding customer expectations. While Grönroos (1984) defines the perceived quality of a service is the result of an evaluation process in which customers compare their expectations of service delivery and its outcome to what they expect. According to quality magazine ensuring quality by adding features that customers want while ensuring consistency and reliability has a cost, but the cost of not embracing quality is much higher, including lost market share, missed opportunities, brand damage, and recalls. In case of this study sector its consequence is a great loss when applied to leading export commodity of a country that 15 million people's livelihoods depend on it.

In highly competitive environment providing quality service is a key factor in success of any organization. To improve performance of organization measuring service quality is vital. Measuring service quality from the end-user perspective requires development of industry-specific scale (Al Bassam and Al shawi, 2011).

According to Cui et.al (2017) the management of service quality is crucial for service providers to improve customers' satisfaction, loyalty and company's profit. But the measurement of service quality is much more complicated compared to the product quality measurement. Moreover, certification & inspection service is a tool to control and guarantee the quality of product and service which is provided by the suppliers. According to Deming and Juran customer lead definition service quality is organization's ability to assess customer's requirement and satisfy such requirements.

2.1.3. Method of measuring service quality & dimensions

The concept of service quality has been widely explored but the literature indicates towards the development of industry specific tools for measuring service quality (Al Bassam and Al shawi, 2011). To understand the factors that contribute towards building service quality industry and to assess the customer perception regarding service quality, quality determinants particular to given industry need to be identified. Kaur and Sharma (2014) conducted a review on service quality to understand the theoretical framework of service quality through the examination of literature on service quality. Propositions made on the basis of literature indicate towards need of industry-specific instruments development for measuring service quality. They also proposed a model that will help future empirical investigation in various units of service industry. They farther remarked to understand the influence of industry specific instrument it requires data collection on both common instrument and specific instrument and comparing service quality perceptions

Kaur and Sharma (2014) and Emel (2014) reviewed the development of service quality measurement as follows: -

Table 2. 1: Service quality models and dimensions

According to Study	Model	Service quality measurement dimension	Instrument	Remark
Sasser et al. (1978)		security, consistency, attitude, completeness, condition, availability, and training of service providers		focused on the qualitative research
Grönroos (1984)	Grönroos Service Quality Model	Technical quality (what was Delivered), functional quality		focused on the qualitative research

		(how the service was delivered), and corporate image (positive impact on customer perceptions)		
Parsuraman et al (1985)	GAP Service Quality Model	10 dimensions (Tangibles, Reliability, Responsiveness, Competence, Courtesy, Credibility, Security, Access, Communication, understanding the Customer)	in depth and focus group interviews	focused on the qualitative research
Haywood-Farmer (1988)	Haywood-Farmer Service Quality Model	physical facilities, processes and procedures, people behavior and conviviality, and professional judgment.		focused on the qualitative research
Parasuraman et al (1988)	SERVQUAL/ RATER model	5 dimensions (Tangibles, Reliability, Responsiveness, Assurance, and Empathy)	22 item instruments with perception & expectation that make 44 in total	Revised from 10 to 5

Cronin & Taylor, 1992	SERVPERF	5 dimensions (Tangibles, Reliability, Responsiveness, Assurance, and Empathy)	22 items of SERVQUAL perception statements with performance only statements	new tool developed from SERVQUAL based on perception only paradigm
Dabholkar et al., 1996	RSQS	Physical aspects, Reliability, Personal interaction, Problem solving, Policy		Retail Service Quality Scale's dimensions
Brady & Cronin, 2001	Service Quality Model	Personal interaction quality, Physical service environment quality, Outcome quality		Developed from SERVPERF
Frost & Kumar, 2000	INTSERVQUAL	Reliability, Tangibles, Assurance, Responsiveness, Empathy		
Philip & Hazlett, 1997	PCP Model	Pivotal, Core, Peripheral attributes		

Source: compiled from Kaur and Sharma (2014); Emel (2014)

According to their review they indicated both gap based and perception based models have been implemented for assessing of service quality. Moreover, there were plenty of models that were derived from SERVQUAL. Though SERVQUAL is the most used method service quality research SERVPERF is becoming an alternative model that fill the criticism held on

SERVQUAL. Some of referenced criticism on SERVQUAL mentioned on the review of Kaur and Sharma (2014) are the following: -

- Generalizability of the dimensions and the overlapping meaning of the dimensions which require customized testing of dimensions relevant to each sector
- Measuring expectations is irrelevant and misleading for the evaluation of service quality
- measuring expectations and perception separately is inappropriate in terms of reliability and questionnaire length
- The respondent will always have the tendency to rate expectation (what is desired) higher than perception (what is perceived to be received)
- focusing mainly on the service delivery process does not consider service outcome

According to these authors, an ideal service quality scale is one that is not only psychometrically sound but is also diagnostically robust enough to provide insights to the managers for corrective actions in the event of quality shortfalls. Empirical studies evaluating validity, reliability, and methodological soundness of service quality scales clearly point to the superiority of the SERVPERF scale (Jain and Gupta, 2004).

Jain and Gupta (2004) study was on measuring Service Quality:SERVQUAL vs. SERVPERF Scales. The purpose was to assess the diagnostic power of the two service quality scales. Validity and methodological soundness of these scales have also been probed in the Indian context of developing world. Using data collected through a survey of consumers of fast food restaurants in Delhi. The study finds the SERVPERF scale to be providing a more convergent and discriminant-valid explanation of service quality construct as follows:-

- Because of its psychometric soundness and greater instrument parsimoniousness, one should employ the SERVPERF scale for assessing overall service quality of a firm. The SERVPERF scale should also be the preferred research instrument when one is interested in undertaking service quality comparisons across service industries.
- On the other hand, when the research objective is to identify areas relating to service quality shortfalls for possible intervention by the managers, the SERVQUAL scale needs to be preferred because of its superior diagnostic power. (Jain and Gupta,2004, p. 25)

According to Grönroos (1984) cited in Emel (2014) he developed the first service quality model and measured perceived service quality based on the test of qualitative methods. Technical quality, functional quality, and corporate image were used in the model as the dimensions of service quality. Technical quality is about customer evaluations about the service. Functional quality which is more important variable for consumer perceptions and service differentiation than technical quality refers how consumers take the service. Technical quality is interested in what was delivered whereas functional quality is interested in how the service was delivered. Corporate image has a positive impact on customer perceptions. Besides the five SERVPERF dimension adopted from SERVIQUAL, which mostly consider the functional or service process aspect listed here under the proposed study will incorporate one sector specific outcome dimension, according to Gronoos classification, The proposed sixth dimension for this study was consistency. It measures the provision of the right certification result of inspection all the time/consistently).

SERVQUAL refers to five service quality dimensions (Parasuraman, Zeithaml, & Berry, 1988):

- Reliability (The ability to perform the promised service dependably and accurately)
- Responsiveness (Willingness to help customers and to provide prompt services)
- Tangibles (Physical facilities, equipment, and appearance personnel)
- Assurance (Knowledge and courtesy of employees and their ability to convey trust and confidence)
- Empathy (Caring, individualized attention the firm provides its customer)

The purpose of this study were to assess the level of service quality and to identify the most important service quality dimensions that influence overall service quality and customer satisfaction in inspection and certification service. Due to interest on overall service quality and customer satisfaction and also validity, reliability, and methodological soundness superiority, SERVPERF model is best suited for the purposes of this study.

2.1.4. Customer satisfaction

According to Kaur and Sharma (2014) service quality is becoming determinate factor of customer satisfaction. Customer satisfaction is a measure of whether or not a consumer gets

a delightful service experience and if the service providers will avail the service in future as well. Parasuraman, Zeithaml, and Berry (1985) suggested that when perceived service quality is high, then it will lead to increase in customer satisfaction.

Customer satisfaction is a measure of how products and services supplied by a company meet or surpass customer expectation. It is the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services exceeds specified satisfaction goals.

The most popular definition of customer satisfaction considers satisfaction in terms of disconfirmation which in turn depends on customer expectation and performance (Oliver, 1997). The definition supports the Parasuraman et al. (1988) gap model that relates service quality thus catapulting studies concerning the influence of service quality and its dimension on customer satisfaction. On one hand, the diverse nature of the definition of customer satisfaction is an indication of its mixed relationship with service quality dimensions.

2.2. Empirical Study

2.2.1. Service quality study in inspection and certification

All of the related research studies described service quality as multi-dimensional construct. However, the number and nature of dimensions change on the bases of the service contexts. It is clear that evaluating and assessing service quality differs from one customer group to another and from one circumstance to another. Therefore, the review of previous literature has documented a need for a future work to be done in order to discover additional appropriate and suitable specific-industry measures for service quality in further service industries and sectors. (Ladhari (2008) cited in Al Bassam and Al shawi ,2011, P.9)

According to Cui, Liu and Qiu, (2017) inspection and certification activity originate from information asymmetry, and it is the activity of providing information positively for smooth progress of the trade activities. Inspection and certification industry is essentially the remedy for market failures and the supplement for the market system. It has an

important role in the aspects of strengthening quality safety, promoting industrial development, maintaining consumer rights and interests and so on. A significant body of academic literature exists on service quality within diverse sector. Though the application of common service quality model in certification & inspection industry is rare (Liu et.al, 2015; Cui et.al, 2017). So far according to literature review made I found only two studies done on China Certification & Inspection Company (CCIC) service quality by using modified SERVQUAL with fuzzy and fuzzy TOPSIS model. Thus inspection and certification industry service quality and customer satisfaction is less researched area that needs the attention of service quality professionals.

Liu et.al (2015) used fuzzy set theory founded on modified SERVQUAL model to analysis service quality in certification & inspection industry in China. The study consists of 405 randomly selected participants who are customers of China Certification & Inspection Company (CCIC). With respect to perception of service quality dimensions they found out from high to low sort: assurance, empathy, reliability, responsive-ness and tangible. The biggest gap between the service quality expectations and perceptions was shown for the five tangible dimension items. Thus, they recommend company (CCIC) to increase investment in tangible aspects in order to improve their service quality.

2.2.2. Relation of service quality and customer satisfaction

The quality of service has become an aspect of customer satisfaction. It has been proven by some researchers that service quality is related to customer satisfaction (Agbor, 2011). There is a strong positive relationship between service quality and customer satisfaction (Parasuraman et. al., 1988; Bahia and Nantel, 2000). Perceive service quality is a component of customer satisfaction (Zeithamal et al., 2009) and it determines customer satisfaction (Cronin and Taylor, 1992; Wang, Lo and Hui, 2003). Ushantha, Wijeratne, & Samantha (2014) conducted study on Customers' Perception on Service Quality towards Satisfaction: An Application of SERVPERF in State Sector Banks in Sri Lanka. The aim of this study was to measure consumers' perceived service quality in state banks and its impact on customer satisfaction in Sri Lanka. This study tried to apply 22 item SERVPERF scale for study. The results revealed that consumers have higher level of positive perception of SERVPERF dimensions. All dimensions (reliability, assurance, empathy,

tangibles and responsiveness) contributed significantly towards the service quality in state banks in Sri Lanka. Further it revealed that there is a strong positive linear relationship between overall service quality and customer satisfaction in state banks in Sri Lanka.

Agbor (2011) conducted a study on the relationship between customer satisfaction and service quality on three service sectors in Umea. The purpose of the study was to assess the relationship between customer satisfaction and service quality in service sectors with respect to the service quality dimensions. Convenience sampling technique was used to get quantitative data from customers of Umea university, ICA and Forex. The findings were distinct for the relationship between customer satisfaction, service quality and service quality dimensions. There have been significant relationships between service quality and customer satisfaction for ICA and Forex but the relationship between service quality and customer satisfaction for Umea University was not significant. All sector result showed that service quality dimensions responsiveness, empathy and reliability were significantly related to service quality while reliability and empathy significantly related to customer satisfaction. Responsiveness was not significantly related to customer satisfaction while service quality significantly related with customer satisfaction. This indicates the service quality dimension varies in the different service sector. This finding suggests that for providing quality service and satisfying customers, organization in service sectors need to improve on the dimensions of service quality and other factors that were given as reasons for satisfaction (Agbor, 2011).

Kaur and Sharma (2014) based on extensive review of empirical studies in various sectors of service industry they have revealed the existence of similar findings on the possibility of relationship between service quality and customer satisfaction and draw two propositions. These were that positive customer perceptions of service quality indicate customer satisfaction and positive customer perceptions of service quality results in customer satisfaction.

As per the related literature review done the only inspection and certification sector specific study done by Liu et.al (2015) stopped on measurement and service quality description stage they did go to service quality dimensions relation to overall service quality and customer satisfaction. Thus, there is a shortage of reference to support the

finding of this study with existing literature. But the finding of relationship and effect of service quality dimension with customer satisfaction can serve as a reference for future study that will be done on the sector.

2.3. Conceptual Framework

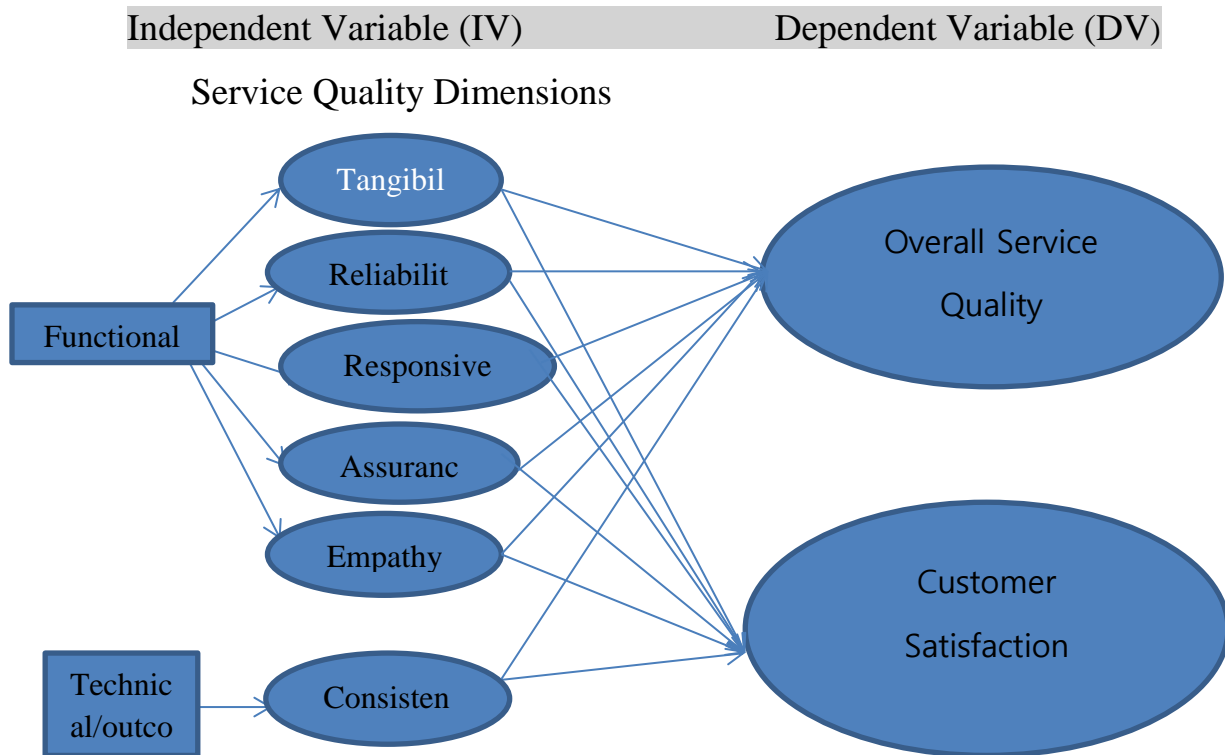


Figure 2. 1: Conceptual framework developed by researcher, 2022

The conceptual framework (CF) is developed based on the related literature review done on service quality. The classification of independent variables, service quality dimensions, into functional and technical was done by adopting SERVPERF model according to Gronroos's service quality model. Functional dimensions measure the service process quality while technical measures service outcome quality (Kang and James, 2004). Though the study intends to apply SERVPERF model that measure five service quality dimensions (Tangibility, Reliability, Responsiveness, Assurance and Empathy) the nature of the sector under study requires the consideration of additional dimension. Besides functional

dimensions of SERVPERF the CF developed for the study of inspection and certification service quality considered one technical dimension (Consistency). Since inspection and certification service has tangible outcome, which is certification result after inspection, integration of this part in the study has improved the comprehensiveness of the service quality measurement. The arrows in the CF show that the study has assessed, analyzed and presented the result of the relation and effect of independent variables, six service quality dimensions, with dependent variable overall service quality and customer satisfaction.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Description of the Study Area

The organization under study was Coffee Quality Inspection and Certification Center (CLU). The export level coffee quality control is the responsibility of CLU. The study was on assessment of service quality of CLU and its customer satisfaction from service users, customers, point of view. Thus, the respondents were customers from coffee processors and exporters firm who get export coffee inspection and certification service from CLU.

According to Segenet (2020) CLU has a mandate to establish quality based, effective and efficient marketing system that benefits smallholder, commercial growers of coffee, tea and spices, coffee processors and exports and also importers in the world to generate better income to the country and the industry actors. Ethiopia is the source and center of origin for coffee Arabica and the only country exporting coffee based on specific geographical origins as Yirgacheffee, Sidama, Harare, Nekempti, Limu, etc., in which each has its own distinguishing physical and organoleptic character. Accordingly, the Ethiopian Coffee Quality Inspection and Certification Center classification was designed and executed in line with keeping country's coffee distinct character and quality profile linked to their specific origin. Before exporting every exporter is obliged to bring coffee to the central quality control point for quality checking and certification. The importance of CLU service is multifold. The main objectives are to: check if the green cup qualities have met the export standard, check whether or not the origins character is maintained, maintain the country's export reputation for its coffee quality, and protect the overseas client's interest. By way of these rigorous quality control procedures, the consumer is assured of receiving high quality product (Segenet ,2020).

3.2. Research Design

This study used descriptive survey research design in order to describe the results obtained from the descriptive statistical tools and applied quantitative and qualitative research approach to address the stated objectives. Primary data were collected on five functional (how the service is provided) service quality dimensions using modified SERVPERF model (Cronin and Taylor, 1992) and one technical (what service is provided) service quality dimensions adapted according to Gronroos's service quality model (Kang and James, 2004). Functional dimensions measure the service process quality while technical measures service outcome quality. Then it was used to describe the service quality of CLU by descriptive statistics. Further explanation of the relationship between the independent variables, functional (Tangibility, Reliability, Responsiveness, Assurance and Empathy) and technical (Consistency) service quality dimensions and the dependent variables (overall service quality and overall customer satisfaction) was done using inferential statistics. Qualitative data about improvement on service quality dimensions in study of inspection and certification service quality from CLU customers' case were summarized and analyzed using check sheet, one of quality tool, and presented on the study. The research was cross sectional in a sense that data were collected at one point in time.

3.3. Population and Sampling Techniques

The main focus of this study was to identify the service quality provided by CLU and its effect on customer satisfaction using modified SERVPERF model. The target populations for this study were the external customers of CLU inspection and certification service. Random sampling technique to select customers was used. Coffee processors and exporters, who were the active user of CLU coffee quality inspection and certification service in the last one year, were the study population.

According to Coffee and Tea Authority coffee processor and exports that get inspection and certification service from CLU and exported their coffee during last year, 2013 E.C,

were 501. Thus, the target populations of this study were 501 customers, coffee processors and exporters, who get inspection and certification service from CLU. Then the sample size of the study was determined by using the formula developed by Yamane (1967). That is,

$$n = \frac{N}{1 + Ne^2}$$

Where, n= is the sample size

N is the population size,

e= Sampling error or the level of precision (10%) at 95% of level of confidence

$$n = 501 / 1 + 501(0.1)^2$$

$$n = 83.36$$

Accordingly, the target sample size of the study was 83 coffee processor and exporters. Since the intention was to email the survey the sample size increased by 30% to 107 respondents to compensate for nonresponse for a desired level of confidence and precision. As service quality professionals used to do the survey was emailed to randomly selected customer of CLU. But no customer, coffee processor and exporter replayed to the email. Thus, a shift to randomly contact and distribute the questioner to CLU customers who came to get the service during data collection period till the required sample number 83 was reached applied. Thus, sample respondents were 83 customers of CLU who have been using CLU service during data collection period of this study.

To triangulate the survey questioner finding interview with 10 respondents from sample processor and exporters firm were done. From sample respondents those at managerial position were selected and interviewed. Farther CLU inspection and certification service delivery process and outcome was observed by researcher.

3.4. Source and Tools/Instruments of Data Collection

The study relies on primary sources of data and also uses secondary data for reference. Primary data were collected using questionnaires adopted from 22 SERVIPERF items

(Rasyida, Ulkhaq, Setiowati, & Setyorini (2016) by including one three items dimension as per Gronroos's service quality model classification. In using SERVPERF, the concept of service quality was based solely on customers' perceptions of performance, not the difference scores (between service perceptions and expectations) as in SERVQUAL.

The content of the data collection instrument /survey questionnaire was composed of four major parts. The first part of the questionnaire asked demographic profile of respondents and respondent organization, the second part contains service quality dimensions perception rating. Besides adapted 22 items SERVPERF questions it includes 3 items for the newly proposed dimension in this study, consistency. All items in this part were rated by respondents on a Five-point Likert scale. Each item will be scaled from 1 with the verbal statement strongly disagree to 5 with the verbal statement strongly agree. The third part was about overall service quality and customer satisfaction. Here also five point Likert response scales that includes Very poor/ highly dissatisfied, poor/ dissatisfied, Fair/ neither satisfied nor dissatisfied, good/ satisfied and very good/highly satisfied, respectively was used. The last part was an open question for suggestion of improvement on service quality dimensions to measure inspection and certification service for future study.

3.5. Procedures of Data Collection

In this study quantitative and qualitative data were collected from CLU customers (primary data sources) using self-administered questionnaire in order to answer the research questions and objectives. Primary data source was what the researcher collected from the target samples. In this study the primary data are those responses of CLU customers accessed via a survey questionnaire.

The questionnaires have four sections. The first part of the questionnaire consists of issues related to the personal information of the respondent and customer organization respondent was representing. The second part is concerned with the questions used to assess service quality of the CLU. The research instrument is designed based on the five functional dimensions of service quality with 22 service items of the SERVPERF Model and one additionally proposed technical service quality dimension with three service outcome

items. The questionnaire included four items correspond to the tangibles dimension; four items correspond to the reliability dimension, five items correspond to the assurance dimensions, five items to the responsiveness, four items to empathy and three items to consistency. Respondents were asked to indicate their degree of agreement with each of the items on five point Likert scale.

The third part of this questioner measured overall service quality and level of customer satisfaction with five-point Likert scale range from 1 (extremely dissatisfied) to 5 (extremely satisfied) to be selected as their responses. They also requested to suggest for important dimensions that could best measure the service quality of such inspection and certification service providing industry.

During Data collection by standing at CLU code and dispatch window each customer who came to get the service was approached. Then with brief introduction about the purpose of the study its confidentiality and also explaining the instrument rating scale the questioners were provided to the respondents. With close follow-up to make any required clarification on the instrument. Finally, the filled questioner was collected with thanks. Farther with 10 willing respondents', at managerial position, interview about CLU service quality, their satisfaction and their service requirements were also done.

3.6 Methods of Data Analysis

In this research, the data collected from the respondents were analyzed using descriptive- and inferential statistics using SPSS (Statistical Package for Social Science) version 20. A data collected from respondents were entered to SPSS and analyzed using descriptive statistical indexes like frequency distribution, percentage, mean and standard deviation were calculated. Inferential statistics like correlation and multiple regression analysis were also carried out to address the research objectives.

After information was collected from primary sources, mainly the information obtained through questionnaire was filled in SPSS data sheet. To feed SPSS, the required variables coding was done on variable view and each respondent response were entered on data

view. Then the required analyses were run according to the research question on the study. For qualitative data not analyzed by SPSS quality tool check sheet was used to organize, summarize and describe the responses on frequency base.

On this study the independent variables were six service quality dimensions (Tangibility, Reliability, Responsiveness, Assurance, Empathy and Consistency). While the dependent variables used for analysis of the study were overall service quality and customer satisfaction. The independent variables were identified and systematically arranged to analyze correlation and multiple linear regression analysis to understand the link they have and their significance effect on over all service quality and customer satisfaction.

3.7 Reliability and Validity

3.7.1 Validity test

In developing research instrument it is crucial to check the technique of process used to measure a concept does indeed measure the intended concept. The research instrument of this study is developed by Parasuraman et. al, (1988). Since then the instrument has been used by many researchers. I have also adopted the instrument to the specific sector under study and give it to experts for review. Empirical studies evaluating validity, reliability, and methodological soundness of service quality scales clearly point to the superiority of the SERVPERF scale (Jain and Gupta, 2004). Therefore, verifying the validity of the instrument is not needed.

3.7.2 Reliability test

A measuring instrument is considered reliable when different attempts at measuring something converge on the same result (Zikmund, Babin, Carr and Griffin,2010). Internal consistency was calculated by using Cronbach's alpha, also referred to as the coefficient alpha, a technique which calculates the mean of all possible combinations of split-half coefficients resulting from different splitting of the measurement instrument. Coefficient

alpha ranges in value from 0, meaning no consistency, to 1, meaning complete consistency (all items yield corresponding values).

Since the study instrument has included the 6th dimension besides the commonly measured five service quality dimensions in SERVPERF model. To check any change related to the inspection and certification service sector specific adoption made consistency of the result was pretested. For the pretest 15 questioners was distributed for half day CLU service customers. The dully filled 10 questioners' response data were tested for reliability using SPSS Statistics V20.

The Cronbach alpha for 27 items on the pretest survey to measure the independent and dependent variables (Tangibility, Reliability, Responsiveness, Empathy, Assurance, consistency, overall service quality and customer overall satisfaction) was 0.952. Generally speaking, scales with a coefficient α between 0.80 and 0.95 are considered to have very good reliability (Zikmund et.al, 2010). The pretest finding also aligns within the range specified by Cronin and Taylor (1992) for SERVIPERF scale's Cronbach's alpha ranges between 0.884 and 0.964 depending on industry type. Therefore, the six dimensions of service quality and also the two dependent variables considered in the study were found to be high in their internal consistency indicating the reliability of the proposed measurement instrument.

Table 3. 1: Reliability statistics

Cronbach's Alpha	N of Items
0.952	27

Source: Own survey, 2022

Table 3.1 provides the Cronbach's Alpha (α) for all dimensions measuring 27 items on the pretest study instrument except background information. As value of Cronbach's Alpha for all items is very high, 0.952, there is no need to farther categories to dimensions to identify the item that should be corrected or omitted to increase reliability. Thus, it can be concluded that the measures used here are consistent enough to conduct the study.

Accordingly, decision to proceed the study with the developed survey instrument with minor rewording, ordering and addition of chooses on background information based on comments from the respondents during pretest was made.

3.8 Ethical considerations

The researcher takes an official letter from St. Mary's University to inform and assure the respective organization and respondents who are taking part in the study that the data collection was mainly for academic purposes. Since the study sector was a delicate one for respondents under study the required explanation about confidentiality, its academic purpose with encouragement to involve them on the study confidently was done for each respondent. All information collected from the respondents treated with confidentiality without disclosure of the respondents' identity. Moreover, no information was modified or changed, hence information gotten was presented as collected and all the literatures collected for the purpose of this study were appreciated in the reference list.

CHAPTER FOUR

ANALYSIS RESULTS AND DISCUSSION

4.1 Introduction

This study assessed the service quality of Ethiopia Coffee Quality Inspection and Certification Center, CLU, and its contribution to customer satisfaction. After completing the data collection procedures using survey questionnaires with triangulation by structured interview and observation the findings of the study are presented and discussed in this chapter. The study findings presented and discussed starting with descriptive statistics, followed by correlation and regression analysis result to see the link and importance of service quality dimensions on determining overall service quality and customer satisfaction of inspection and certification service. Farther service quality dimensions that should be incorporated in future study of inspection and certification sector probed from CLU case.

4.2 Response Rate

In order to collect information on service quality and customer satisfaction of CLU inspection and certification service 85 questionnaires were distributed to the respondents and the response rate was shown in the table 4.1.

According to Table 4.1, out of 85 distributed questionnaires 75 (88.24 %) were collected while 10 (11.76%) of the questionnaires remained uncollected.

From collected 75 responses 5 was found uncompleted. Thus, response rate constitutes 82.35%. According to Saunders, Lewis & Thornhill (2007), a response rate of 70% and over is very good. Thus, the response rate in this study was considered very good. The analyses of this study were made based on the responses obtained from 70 respondents.

Table 4.1 Response rate

Item	Response rate	
	No	Percent (%)
Sample size	85	100
Returned response	75	88.24
Unreturned response	10	11.76
Unfulfilled response	5	5.88
Valued response	70	82.35

Source: Own survey, 2022

4.3 Demographic Characteristics of Respondents and Their Organization

Descriptive statistics (frequency statistics) is used to discuss the demographic characteristics of respondents. In order to give support to the interpretation of the results the following background information about CLU inspection and certification service customers were collected. These were survey respondents' educational level, position, experience and their organization experience, export frequency per year, nonconformance frequency experienced per year related to coffee quality inspection and certification service were presented and discussed in tables below.

4.3.1 Education background of the respondents

Concerning to educational level of the respondents, Table 4.2 indicate that about 50% of the respondents were degree holders, 18.6 % of the respondents were diploma holders, 17.1% were 12 complete and below and 14.3% of the respondents were masters and above.

This show that about 82.9 % of the respondent were graduate who can provide valued and acceptable service quality and customer satisfaction assessment response that can improve the quality of the study.

Table 4. 2 Educational background of the respondents

Educational Level	Frequency	Valid Percent	Cumulative Percent
<10	2	2.9	2.9
10/12 Complete	10	14.3	17.1
Diploma	13	18.6	35.7
First Degree	35	50.0	85.7
Master & above	10	14.3	100.0
Total	70	100.0	

Source: Own survey, 2022

4.3.2 Respondent position

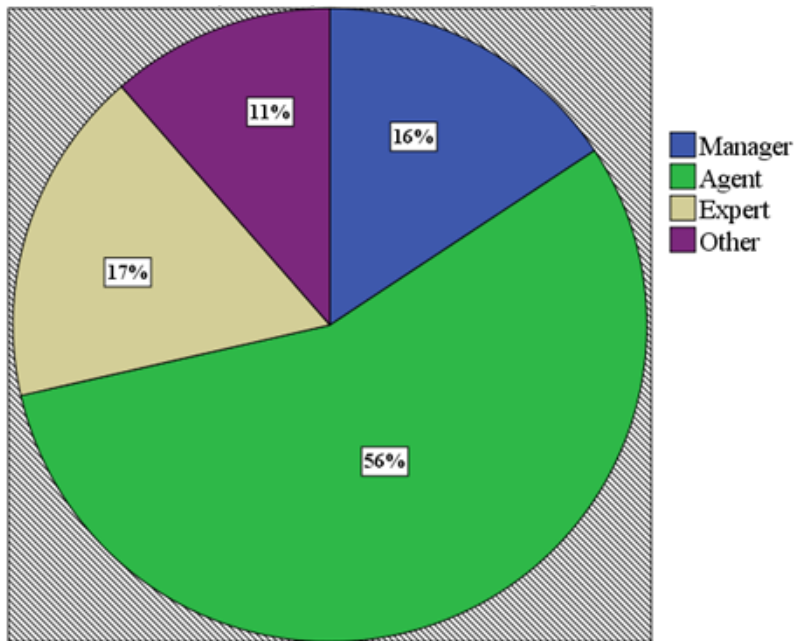


Figure 4. 1 Respondents position pie chart

Source: Own survey, 2022

Figure 4.1 presents the valued percent distribution of the participant's job title in CLU customers' organization. The majority of participants consisted of agent position which is about 56%. While the remaining 17%,16% and 11% of the respondents hold expert, manager and other position like officers, export operator, logistics, sales, commercial director, etc., respectively.

This indicates that the 70 respondents who participated in this study have a good mix of professionals from customer organization that can evaluate the service quality of CLU and customer satisfaction from diversified perspectives. Coffee quality inspection and certification service is mostly followed by agents represented by one up to more than four coffee exporters. Though they are 39 in number in actual case they might represent 78 to 156 exporters which raise the representation of respondent to 109 up to more than 187 customers. Hence the majority of the respondents were process owners of the service under study which they were well acquainted with. Thus the provided perception rates for survey questioner by such respondents were more acceptable.

4.3.3 Respondents experience about CLU inspection and certification service

Figure 4.2 below showed the experience of respondents with CLU coffee quality inspection and certification service. 30 % of the respondents have less than 1 year; 31.43 % of the respondents have 1 to 3 years and 38.58 % of the respondents have more than 3 years' experience about CLU coffee quality inspection and certification service. Since majority of the respondents have above six months to more than 3 years acquaintance with CLU service, they could not get challenged to assess the service quality from different service quality dimensions under the study and provide the right perception that contribute for valued analysis of the results.

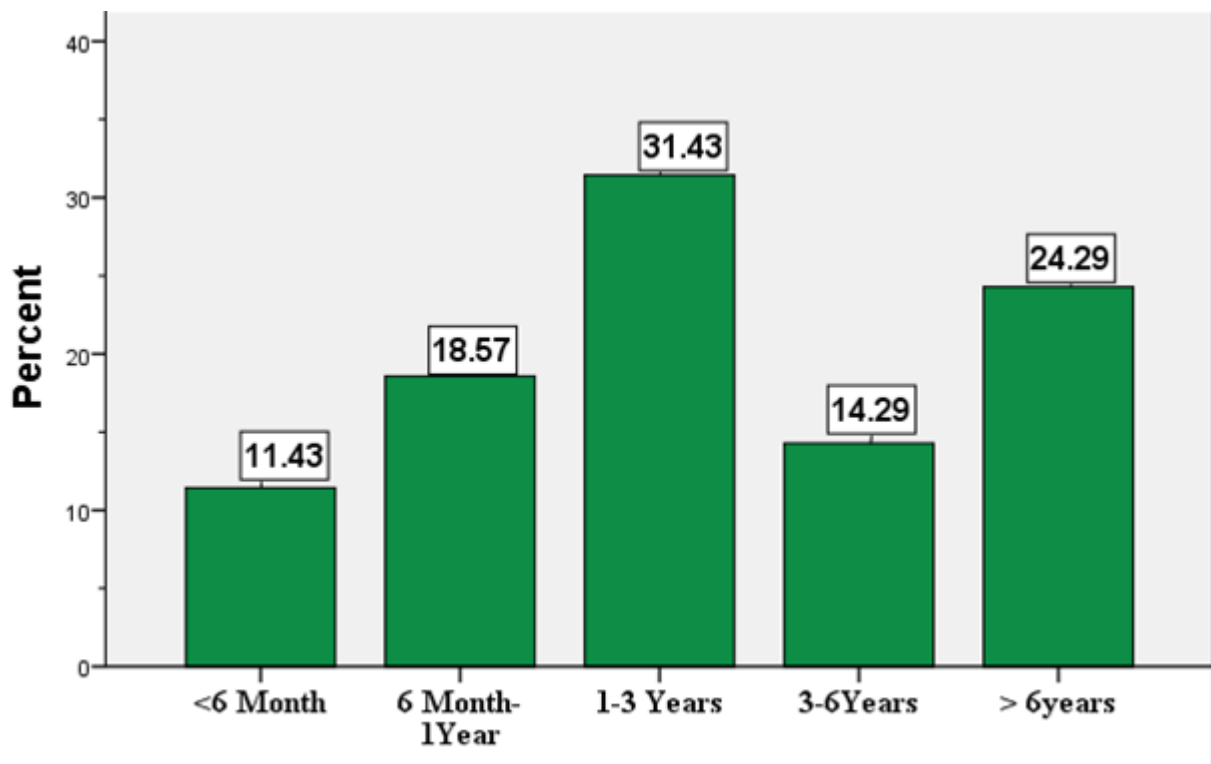


Figure 4.2 Respondents CLU inspection and certification service experience

Source: Own survey, 2022

According to Anderson and Fornell (1994) cumulative customer satisfaction is an overall evaluation based on the total experience with service overtime. This is more fundamental and useful than transaction-specific consumer satisfaction in predicting consumers' subsequent behavior and a firm's past, present and future performance. Therefore these respondents were good representative of customers that can provide a cumulative service quality and customer satisfaction perception about CLU.

4.3.4 Respondent organization profile related with CLU service

The results presented in Table 4.3 showed the profile of coffee exporter organizations represented by respondents. Only 8 respondents represent one year client organization for CLU service under study. While the rest 62(88.6%) of the respondents proportionally represent client organizations which have got more than one year to above 10 years' service from CLU. This looks a good representation of the population under study that can help generalizations of the result for entire CLU customer.

Table 4.3 Respondents organization profile

Organization Profile		Freq uency	Valid Percent	Cumulative Percent
Being CLU client for	1 Year	8	11.4	11.4
	1-3 years	17	24.3	35.7
	3-6 years	12	17.1	52.9
	6-10 years	17	24.3	77.1
	Above 10 years	16	22.9	100.0
	Total		70	100.0
Last year export frequency	once	3	4.3	4.3
	Twice	5	7.1	11.4
	Three times	4	5.7	17.1
	More than 3 times	57	81.4	98.6
	9999	1	1.4	100.0
	Total		70	100.0
Last year nonconformance / Clients export coffee sample reject by CLU	No	17	24.3	24.3
	once	14	20.0	44.3
	2-3 times	27	38.6	82.9
	4-5 times	3	4.3	87.1
	>5 times	9	12.9	100.0
	Total		70	100.0

Source: Own survey, 2022

Respondents' organization last year export frequency shows that 81.4% of the client organization represented by respondents export more than 3 times per year. This indicates that the majority of the respondents contacted CLU 4 times or every three months last year to get export coffee quality inspection and certification and related services if not every day and weeks for the case of large exporters. This also support that the respondents under the study were a good representative of service quality and customer satisfaction assessment study due to their frequent contact of CLU.

Coffee exporters who come to CLU to get export coffee quality inspection and certification service may face no reject to more than 5 times sample reject by CLU and rework to meet the requirement and export their coffee. Specifically, during last year as Table 4.3 indicated 24.3% no, 20% once, 38.6% 2-3 times and 12% more than 5 times nonconformance of export coffee samples have been experienced. Accordingly, during last year export, 55.7

% of the respondents coffee export organizations have reworked 2 and more than 2 times to meet export requirements and export their coffee. Will this experience get the respondents disappointed with the service of CLU or not? As this finding contradict with quality slogan “do it right the first time” this looks a fertile area for future quality professionals’ further study for improvement in the sector.

4.4 Descriptive Analysis of Service Quality Dimensions and Customer Satisfaction

Descriptive analysis was used to summarize the collected data and provide an understanding of respondents’ answers to each survey item as well as the central tendency of the variables of the study computed. The following sections include a description of each of the 25 items; six service quality dimensions level, overall service quality and customer satisfaction to obtain a general understanding of customer perceptions about CLU service quality and overall customer satisfaction. Each item was rated on a 5-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5).

The Likert scale was converted to a scale suitable interpret mean level of agreement of respondents. The limits of the scale were 1.00 to 1.49 = Strongly Disagree, 1.50 to 2.49 = Disagree, 2.50 to 3.49 = Neither Agree nor Disagree/Neutral, 3.50 to 4.49 = Agree and 4.50 to 5.00 = Strongly Agree. Therefore, mean score below 2.50 was considered low, the mean score from 2.50 up to 3.50 was considered moderate and mean score above 3.50 was considered as high. The standard deviation was used to measure the concentration of the data around the mean which the smaller value indicates the more concentrated data. The analysis results were discussed below.

4.4.1 Customers perception towards service quality dimensions items

Description of CLU service quality was done based on 70 sample customers perception rate based on modified SERVPERF model developed survey instrument with addition of one technical service quality dimension with three items. The results shown in Table 4.4 below indicated that the mean value for all 25 service quality dimensions items was 3.6. This value indicates that on average the respondents agree on service quality provided by CLU.

Table 4. 4 Perceived service quality dimensions items mean and standard deviation

Service quality dimensions	Items	N	Mean	Std. Deviation
Reliability	P1-When CLU employees promises to do something by certain time, they do so	70	3.43	1.084
	P2-When you have problem, CLU shows a sincere interest in solving it	69	3.68	1.091
	P3- CLU performs the service dependably (e.g standardization, take the right sample, inspect and certify right the first time)	70	3.69	1.198
	P4-CLU provides the service at the time they promise to do so/required. (Assign samplers, provision of inspection and certification result on time)	69	3.48	1.244
	P5-CLU insists on error free records/keep accurate information (e.g. proper coding of sample, right result/grade)	70	3.76	1.013
Responsiveness	P6-Employees of CLU inform you as customer, exactly when services will be performed	70	3.73	1.154
	P7-Employees of CLU give you as a customer prompt/quick service	70	3.54	1.045
	P8- Employees of CLU are always willing to help you	69	3.77	1.087
	P9-Employees of CLU will never be too busy to respond to your request quickly	70	3.23	1.144
Assurance	P10-The behavior of CLU Employees instills confidence in you/you trust them	70	3.73	1.076
	P11- You as a customer of CLU feel safe in using inspection and certification services from CLU	70	4.01	1.070
	P12-Employees of CLU are consistently polite and friendly to you as their customer	69	3.87	1.097

	P13 -Employees of CLU have adequate knowledge to answer your question	70	3.80	1.124
Empathy	P14 -As a customer CLU gives you individualized attention	70	3.36	1.204
	P15 -CLU has assigned employees that gives personal service to its customers	70	3.26	1.138
	P16 -Employees of CLU understand the specific needs of their customers	70	3.60	1.109
	P17 -The employees of CLU have their customers' best interests at heart	69	3.52	.964
	P18 -CLU has working hours convenient to all their customers	69	3.59	1.102
Tangibles	P19 -CLU has up to date/latest inspection and certification service	70	3.49	1.018
	P20 -CLU physical facilities (building, laboratories, stores) are visually appealing	70	3.37	1.182
	P21 - Employees of CLU have a neat appearance	67	3.51	.959
	P22 -CLU has up-to-date and visually appealing materials/ equipment associated with the service	70	3.36	1.064
Consistency	P23 -CLU always give the right inspection and certification result	70	3.56	1.199
	P24 -Always Coffee which doesn't fulfill the requirement inspected and certified as unfit	69	3.74	1.052
	P25 -Always coffee which fulfill the requirement inspected and certified as fit	69	3.93	.975
	Valid N (listwise) and Grand Mean	65	3.60	

Source: Own survey, 2022

Assurance item, “**P11**- You as a customer of CLU feel safe in using inspection and certification services from CLU” has the highest mean score of **4.01**. The mean score for majority of the items ranges from 3.50 to 4.00. This indicates that the respondents agree on the existence of quality service described on the items at CLU. While responsiveness item “**P9**-Employees of CLU will never be too busy to respond to your request quickly” had the lowest mean score of **3.23**.

Besides 2 reliability items **P1** and **P4** providing the service at promised or required time; 2 empathy items **P14** and **P15** giving individual attention and assigning employees to customers and 3 tangibles items **P19**, **P20** and **P22** having visually appealing and modern physical facilities, equipment and provision of modern service have mean score of less than 3.50 in neutral response rate. This indicates that the respondents perceived the existence of

such service in CLU moderately. Though the average value rated high service quality dimensions items which fail in moderate level needs CLU’s consideration for improvement in future quality service endeavors.

Table 4.5 Respondents perception rate to service quality dimensions items

		Frequency	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	1.5	1.5
	disagree	5	7.7	9.2
	Neutral	17	26.2	35.4
	agree	38	58.5	93.8
	strongly agree	4	6.1	100.0
	Total	65	100.0	
Missing	System	5		
Total		70		

Source: Own survey, 2022

Farther Table 4.5 showed that the 25 service quality items average perception rate frequency and percentage distribution competed from ground mean of the items. The result indicated that 9.2% of respondents were in disagreement, 26.2% of respondents were neutral and 64.6% of respondents were in agreement with the provision of all the 25 service quality dimensions items in CLU. CLU is one of pivotal quality infrastructure in the sector with a vision to release the competitiveness of Ethiopian coffee in world market. One of its organizational values is striving to satisfy customers. 35.4% neutral and disagreement response for presence of quality service described under the items in CLU service delivery process or outcome calls attention for improvement.

4.4.2 Customers perception towards CLU service quality dimensions

The following sections included a description of each of the six dimensions to obtain a general understanding of customer perceptions about service quality dimensions. The service quality dimensions under study were reliability, responsiveness, assurance,

empathy, tangibles and consistency. As the measures of variable under study were ordinal median and mode are the preferred measure of central tendency. Thus mean, median, mode and standard deviations of each dimensions composite scores were presented in Table 4.6.

Table 4. 6 Service quality dimensions central tendency measures

		Service quality dimensions					
		Reliability	Responsiveness	Assurance	Empathy	Tangibles	Consistency
N	Valid	70	70	70	70	70	70
	Missing	0	0	0	0	0	0
Mean score		3.61	3.54	3.81	3.49	3.36	3.74
Median score		4.00	4.00	4.00	4.00	4.00	4.00
Mode score		4	4	4	4	4	4
Std. Deviation		.906	.958	.921	.913	.917	.973

Source: Own survey, 2022

Table 4.6 reveals the center of distribution of customers' perception score. The median and mode for the entire six service quality dimensions were 4. This indicates that the customers on the survey agree on presence of quality service from all measured six service quality dimensions perspectives.

According to the mean score the highest rated dimension was assurance (3.81) followed by consistency (3.74), reliability (3.61) and responsiveness (3.54). The lowest rated dimensions are empathy and tangibles with mean score of 3.49 and 3.36, respectively. Since both values are less than 3.5 it indicates the customers were neutral to perceive the provision of quality service as described under empathy and tangibles dimensions in CLU. Except the discrepancy on empathy and the new dimension consistency the study of Liu et.al (2015) on China Certification & Inspection Company (CCIC) showed similar perception result. The found service quality dimensions values were from high to low sort: assurance, empathy, reliability, responsiveness and tangible. The biggest gap between the

service quality expectations and perceptions in their finding was on five tangible dimension items. Thus, they recommend company (CCIC) to increase investment in tangible aspects in order to improve their service quality.

The study findings indicated that CLU has to maintain the service quality of the dimensions sample customers agree up on. For instance, the assurance and consistency mean score describe that customers agreed on provision of consistently right inspection and certification result with confidence instilling service, adequate knowledge and polite employees.

While the lowest rated dimensions empathy and tangibles might need more attention from CLU. As shown on Table 4.4, CLU need to improve the empathy dimension items like giving individual attention and assigning employees for customer personal service and tangibility item like modernizing its service and service provision facilities and equipment

4.4.3 Customers perception towards CLU Overall Service Quality

Respondents were asked one question relating to overall service quality of CLU: *“How do you evaluate the overall quality of inspection and certification services provided by CLU??* “The scores measure from 1 for “Very Poor” to 5 for “Very Good”. According to operational definition of this study overall service quality is a comprehensive measure of a given service quality from customer perspective. This variable included to capture the other service quality factors which are important to specific context of the sector and respondent under study but not actually included in the specified service quality dimensions. It can also serve as validity item when the service quality requirements of the respondent align or not align with the measured service quality dimensions. Furthermore, as it is demonstrated on conceptual framework it serves as variable to which service quality dimensions relationship analysis is computed with overall service quality like with overall customer satisfaction.

Table 4. 7 Descriptive statistics for overall service quality

	N	Minimu m	Maximu m	Mean	Std. Deviation
Overall service quality	70	2	5	3.84	.629
Valid N (listwise)	70				

Source: Own survey, 2022

The descriptive analysis presented in Table 4.7 reveals an overall service quality mean value of **3.84** and standard deviation of **.629**. This value indicated that the customers perceive the overall inspection and certification service provided by CLU is good. One scale measured overall service quality mean value of 3.84 and six service quality dimensions rated grand mean service quality value 3.60 (Table 4.4) fails in high or good level of perception scale. This finding validates that there were no respondents biased understanding and rating of the service quality dimensions items during filling the survey.

Table 4. 8 Percentage for overall service quality perception rate

Perception scale		Frequency	Valid Percent	Cumulative Percent
Valid	Poor	2	2.9	2.9
	Fair	14	20.0	22.9
	Good	47	67.1	90.0
	Very Good	7	10.0	100.0
	Total	70	100.0	

Source: Own survey, 2022

Farther perception rate percentages descriptive statistics analysis in Table 4.8 discloses that the majority of the respondents, 77.1%, perceive overall service quality of CLU as good and very good.

While 2.9% and 20 % of the respondents rated the overall service quality of CLU as poor and fair, respectively. Though the majority response is good as quality infrastructure organization CLU need to consider that there is a room to improve to very good level and also consider 25.8 % fair and poor response to at least good level

4.4.4 Overall customer satisfaction about CLU service

On the survey respondents were asked one question pertaining to overall customer satisfaction: “Overall, how much satisfied are you with the inspection and certification services provided by CLU?”. The scores measured from 1 for “Extremely dissatisfied” to 5 for “Extremely satisfied”. The descriptive analysis of overall customer satisfaction was presented in table below.

Table 4.9 Descriptive statistics for overall customer satisfaction

	N	Minimum	Maximum	Mean	Std. Deviation
Overall Customer Satisfaction	70	2	5	3.76	.669
Valid N (listwise)	70				

Source: Own survey, 2022

Table 4.9 indicated that the overall customer satisfaction mean value, **3.76** and standard deviation, **0.669**. This value indicated that on average the respondents were satisfied with the level of inspection and certification service provided by CLU while the mean value, 2 and max value, 5 point out there are also dissatisfied and extremely satisfied respondents with CLU service. Table 4.10 further showed the frequency and percentage of the respondent’s satisfaction perception rate.

Table 4. 10 Percentage for overall customer satisfaction perception rate

Perception scale		Frequency	Valid Percent	Cumulative Percent
Valid	Dissatisfied	4	5.7	5.7
	Neither dissatisfied nor satisfied	14	20.0	25.7
	Satisfied	47	67.1	92.9
	Extremely Satisfied	5	7.1	100.0
	Total	70	100.0	

Source: Own survey, 2022

Table 4.10 reveals that out of 70 respondents 5.7% are dissatisfied, 20% neither dissatisfied nor satisfied, 67.1% satisfied and 7.2% extremely satisfied with service provided by CLU. The majority of the respondents 74.2% are satisfied or extremely satisfied with the service provided by CLU. This was a very encouraging result for quality infrastructure organization that stands for quality like CLU. Quality is meeting and exciding customer requirement. Thus, more than quarter, 25.7%, neutral and dissatisfaction response also indicates that there is still room for improvement that should be considered by management of CLU. As an organization with one of its values is striving to satisfy customers quality management measure should be applied to better satisfy unsatisfied customers. To attain better level of satisfaction, CLU need to identify cause of dissatisfactions, analyze, improve and control it to attain the level customer satisfaction striving for it.

4.5. Relationship of Service Quality Dimensions with Overall Service Quality and Customer Satisfaction

According to Ramya, Kowsalya and Dharanipriya (2019) the concept 'service quality' is not an independent term, means, its formation depends upon several factors or dimensions related to service and service firms. Thus, this study is conducted to fill theoretical gaps

seen in rarely studied service sector specifically inspection and certification sector (Liu et.al, 2015; Cui et.al, 2017). Hereunder the link between six service quality dimensions with overall service quality and customer satisfaction in inspection and certification sector were presented from correlation analysis of the study variables.

Correlation coefficient is a measure of relationship (association) and strength between two variables. The correlation coefficient ranges between -1 and 1. If the two variables are in perfect positive linear relationship, the correlation coefficient will be 1 and if they are in perfect negative (inverse) relationship, the correlation coefficient will be -1. The correlation coefficient is 0 (zero) if there is no linear relationship between the variables. The rule of thumb for interpreting the size of a correlation coefficient is also stated by Mac Eachron (1982) as follows in Table 4.11:

Table 4. 11 Measures of association and descriptive adjectives

Measure of Association	Descriptive Adjective
> 0.00 to 0.20 ; < -0.00 to -0.20	Very weak or very low
> 0.20 to 0.40; < -0.20 to -0.40	Weak or low
> 0.40 to 0.60; < -0.40 to -0.60	Moderate
> 0.60 to 0.80; < -0.60 to -0.80	Strong or high
> 0.80 to 1.0; < -0.80 to -1.0	Very high or very strong

Source: (MacEachron, 1982)

4.5.1 Relationship of service quality dimensions and overall service quality

To determine the relationship between service quality dimensions (tangibility, reliability, responsive, assurance, empathy and consistency) with overall service quality and overall customer satisfaction, Pearson correlation was computed. The results of Pearson correlation analysis on the relationship between each service quality dimensions and overall service quality of CLU inspection and certification service was presented in Table 4.12.

Table 4. 12 Correlation of service quality dimensions and overall service quality

		Overall service quality	Reliability	Responsiveness	Assurance	Empathy	Tangibility	Consistency
Overall service quality	Pearson Correlation	1						
	Sig.(2- tailed)							
Reliability	Pearson Correlation	.401**	1					
	Sig.(2- tailed)	.001						
Responsiveness	Pearson Correlation	.384**	.696**	1				
	Sig.(2-tailed)	.001	.000					
Assurance	Pearson Correlation	.449**	.642**	.690**	1			
	Sig. (2-tailed)	.000	.000	.000				
Empathy	Pearson Correlation	.463**	.510**	.738**	.643**	1		
	Sig. (2-tailed)	.000	.000	.000	.000			
Tangibility	Pearson Correlation	.501**	.604**	.485**	.560**	.586**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
Consistency	Pearson Correlation	.454**	.593**	.525**	.625**	.501**	.591**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).								
b. Listwise N=70								

Source: Own survey, 2022

According to Table 4.12 there were statistically significant positive relationships between the six dimensions of service quality and overall service quality. All service quality dimensions have significant correlation with overall service quality and with each other at significance level of 0.001. The highest correlation is observed between tangibility and overall service quality (0.501) followed by empathy (0.463), consistency (0.454), and assurance (0.449) and reliability (0.401), respectively. The lowest correlation is observed between responsiveness and overall service quality (0.384). According to measure of association (Table 4.11) the association ranges from weak between responsiveness and overall service quality to highest moderate relationship between tangibility and overall service quality.

In general, if correlation is positive between two or more variables the relationship is direct. Thus, when service quality dimensions delivered in better way the overall service quality also improved. If improvements on overall service quality required there is a need to consider all service quality dimensions with relative priority order and focus from highly correlated dimensions to the weakest. Hence if our study organization CLU need to improve its overall service quality level it needs to prioritize tangibility and empathy dimensions while also working on the other dimensions too since all have direct relationship. This is to mean to attain better overall service quality CLU has to commence its improvement measure with modernizing its service and service provision facilities and equipment and then provision of individual attention to customers and assigning adequate employees for personal service to customer with consideration of all other dimensions items too. The interview and observation made to triangulate the survey also confirm this fact.

4.5.2 Relationship of service quality dimensions and overall customer satisfaction

The results of Pearson correlation on the relationship between service quality dimensions and customer satisfaction is presented in Table 4.13.

Table 4. 13 Correlation of service quality dimensions and overall customer satisfaction

		Overall satisfacti on	Reli abilit y	Respons iveness	Assura nce	Empat hy	Tangib ility	Consis tency
Overall satisfaction	Pearson Correlation	1						
	Sig. (2-tailed)							
Reliability	Pearson Correlation	.417**	1					
	Sig. (2-tailed)	.000						
Responsive ness	Pearson Correlation	.299*	.696*	1				
	Sig. (2-tailed)	.012	.000					
Assurance	Pearson Correlation	.349**	.642*	.690**	1			
	Sig. (2-tailed)	.003	.000	.000				
Empathy	Pearson Correlation	.267*	.510*	.738**	.643**	1		
	Sig. (2-tailed)	.025	.000	.000	.000			
Tangibility	Pearson Correlation	.427**	.604*	.485**	.560**	.586**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.000		
Consistenc y	Pearson Correlation	.437**	.593*	.525**	.625**	.501**	.591**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								
c. Listwise N=70								

Source: Own survey, 2022

According to Table 4.13, there were positive linear correlations between the six dimension of service quality and customer satisfaction. Moreover, the finding indicates that the level of significance for all service quality dimensions is lower than 0.01 except responsiveness and empathy which are also significant at lower than 0.05 levels.

This indicates that there is a significant positive relationship between the six dimensions of service quality and customer satisfaction. As per Table 4:11 the association of service quality dimensions with customer satisfaction ranges from moderate to weak. Though the association were not strong as indicated by most of the previous finding, the positive liner relationship of all service quality dimensions with customer satisfaction were in conformance with the previous findings (Ushantha, Wijeratne, and Samantha, 2014; Agbor, 2011; Parasuraman et. al., 1988; Bahia and Nantel, 2000; Cronin and Taylor, 1992; Wang et al., 2003).

Relatively the highest correlation is between consistency and customer satisfaction (0.437) followed by tangibility (0.427), reliability (0.417), assurance (0.349), and the remaining dimensions responsiveness (0.299) and empathy (0.267) respectively. The finding indicated that there were weak associations between empathy and customer satisfaction whereas; the highest moderate correlation was between consistency and customer satisfaction. In general, when service quality dimensions and customer satisfaction is positively related; delivering better service quality ensures higher customer satisfaction.

Accordingly, the most important service quality dimension that affects CLU customer satisfaction of inspection and certification service was consistency. This indicates that consistency is perceived as a dominant service quality followed by tangibility and reliability. This indicates improvement in provision of consistent right inspection and certification result, delivered in modern way with modern facility and equipment has significant enhancement on customer satisfaction levels. With the same analogy delivering dependable and accurate service by improving service delivery as required and promised also has significant contribution. Even if, assurance, responsiveness and empathy have weak association improving these dimensions also enhance customer satisfaction.

4.6 Effect of Service Quality Dimensions on Overall Service Quality and Overall Customer Satisfaction

The previous analysis indicated that all independent variables had moderate to weak relationships with the dependent variables but did not explain how they interact to predict dependent variables. In this section multiple regression analysis was employed using SPSSV20 to examine the effect of service quality dimensions on overall service quality and customer satisfaction in inspection and certification sector from CLU case in Ethiopian context. As service quality in inspection and certification sector is less researched one, can the independent variables five SERVPERF model adapted service quality dimensions and also this study proposed sixth dimension, consistency, be established as a statistically significant predictor of overall service quality and customer satisfaction of inspection and certification sector? Or the service quality dimensions in this study needs improvement to better predict the dependent variables, overall service quality and overall customer satisfaction? More specifically, regression analysis helps one understand how the typical value of the dependent variable (criterion variable) changes when any one of the independent variables is varied, while the other independent variables remain constant. Thus, multiple regression analysis was done to identify the effect of independent variables on dependent variables.

4.6.1 Multiple Regression Analysis

Using two or more independent variable to predict a dependent variable is called multiple regressions. Multiple regressions (MR) analyses how well linear combinations of independent variables can predict the dependent variables. As depicted on conceptual framework of this study the independent variable six service quality dimensions (consistency, tangibility reliability, assurance responsiveness empathy) have effect on the two dependent variables overall service quality and customer satisfaction. To investigate these phenomena regression model using a step-by-step approach was used. However, it was necessary to carry out diagnostic tests to confirm whether the data collected fit well in the model.

4.6.2 Assumptions for multiple regression analysis

The following diagnostic tests were carried out before the regression analyses test, Normality, Linearity, Homoscedasticity and Multicollinearity tests.

Normality test: - Multiple regression requires that the independent variables in the analysis be normally distributed. The normal distribution of the data can be described by the skewness and kurtosis statistics. Thus, normality is computed using skewness and kurtosis for all variables and presented in Table 4.14 as follows.

Table 4. 14 Normality test through skewness and kurtosis

		N	Skewness		Kurtosis	
		Statistic	Statistic	Std. Error	Statistic	Std. Error
Overall	service quality	70	-.593	.287	1.188	.566
Overall	satisfaction	70	-.873	.287	1.195	.566
Reliability		70	-.834	.287	.788	.566
Responsiveness		70	-.787	.287	.138	.566
Assurance		70	-.761	.287	.443	.566
Empathy		70	-.663	.287	.290	.566
Tangibles		70	-.433	.287	-.603	.566
Consistency		70	-.330	.287	-.831	.566
Valid N (listwise)		70				

Source: Own survey, 2022

Table 4.14 reveals that the skewness statistics for all variables are within the acceptable range for normality (-1.0 to +1.0). However, the kurtosis statistic of 1.188 and 1.195 for both dependent variable overall service quality and customer satisfaction are outside the

acceptable range. Since all independent variables meet the assumption of normality as per the requirement of MR, we can assume that normality is fulfilled and proceed with next step.

Linearity and homoscedasticity test: - As per the assumption of MR there must be a linear relationship between the dependent and independent variables. Pearson’s moment correlation coefficient analysis presented in Table 4.12 and Table 4.13 above shows that there are linear correlations between all independent variables and both dependent variables. The scatter plots matrix drawn visual observation also confirms the existence of linearity. Multiple regressions also assume the range of variance for the dependent variable is uniform for all values of the independent variables. With such small plots it’s hard to assess the homogeneity assumption. However, inspection of the plots shows good variability in the plots. Thus, the analysis proceed with the assumption homoscedasticity is not a major problem.

Independence of residuals: - The independence of the residuals can be measured by Durbin-Watson statistics. The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule, the residuals are independent (not correlated form one observation to the other one) if the Durbin-Watson statistic is approximately 2, and an acceptable range is 1.50 - 2.50 Muluadam (2015).

Table 4. 15 Durbin-Watson statistics for independence of residuals

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.568 ^a	.323	.259	.541	2.5
2	.504 ^a	.254	.183	.605	2.4
a. Predictors: (Constant), Consistency, Empathy, Reliability, Tangibility, Responsiveness, Assurance					
b. Dependent Variable: 1 (Overall service quality),2 (Overall customer satisfaction)					

Source: Own survey, 2022

Table 4:15 showed Durbin-Watson value for dependent variables overall service quality and overall customer satisfaction computed with six independent variables / service quality dimensions. Durbin-Watson value is 2.5 and 2.4 for overall service quality and overall satisfaction, respectively. This indicates that there is no correlation among the residuals and hence fulfills the assumptions.

Multicollinearity test:- In multiple regression analysis, multicollinearity refers to a situation where a number of independent variables are closely correlated to one another. Multicollinearity test is done using variance inflation factor (VIF). The VIF indicates whether a predictor has a strong linear relationship with other predictor(s). As a rule of thumb, if the VIF of a variable exceeds 10, there will be a serious multicollinearity problem. The tolerance statistics, which is the reciprocal of VIF (1/VIF), also used to test multicollinearity. Tolerance values below 0.1 indicates serious multicollinearity problem.

Table 4. 16 Multicollinearity test statistics

Model	Dependent Variable			
	Overall service quality		Overall satisfaction	
	Collinearity Statistics			
	Tolerance	VIF	Tolerance	VIF
Reliability	.372	2.687	.372	2.687
Responsiveness	.289	3.464	.289	3.464
Assurance	.390	2.567	.390	2.567
Empathy	.356	2.812	.356	2.812
Tangibles	.465	2.150	.465	2.150
Consistency	.502	1.992	.502	1.992

Source: Own survey, 2022

As shown on table 4.16, the value of VIF for all independent variable does not exceed 10 and the value of tolerance is not below 0.1. Therefore, it is assumed that there is no multicollinearity among the independent variables.

4.6.3. Multiple regression analysis and results

In this study multiple regression analysis was employed to examine the effect of service quality dimensions on overall service quality and overall customer satisfaction. When doing regression analysis, we determine whether or not there is a relationship between the independent variables and the dependent variable by examining the ANOVA table. This can be thought of as the overall fit of the regression model. The following tables present the Anova results of multiple regressions analysis.

Table 4. 17 Anova for service quality dimensions and overall service quality

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.809	6	1.468	5.010	.000 ^b
	Residual	18.462	63	.293		
	Total	27.271	69			
a. Dependent Variable: Overall service quality						
b. Predictors: (Constant), Consistency, Empathy, Reliability, Tangibles, Responsiveness, Assurance						

Source: Own survey, 2022

Table 4. 18 Anova for service quality dimensions and overall customer satisfaction

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.83	6	1.305	3.568	.004 ^b
	Residual	23.042	63	0.366		
	Total	30.871	69			
a. Dependent Variable: Overall satisfaction						
b. Predictors: (Constant), Consistency, Empathy, Reliability, Tangibles, Responsiveness, Assurance						

Source: Own survey, 2022

The ANOVA results, Table 4.17 & Table 4.18, show a 0.000 and 0.004 probability of F statistic respectively. Since both values are less than the level of significance of 0.05 it indicates that there is statistically significant relationship between service quality dimensions and overall service quality and customer satisfaction. This represents that the model was reasonable fit and all the six service quality dimensions taken together have association with both dependent variables.

4.6.4 Effect of service quality dimensions on Overall service quality

To identify which independent variables interaction contributed to overall model fit farther stepwise regression analysis was done. Stepwise regression is the step-by-step iterative construction of a regression model that involves the selection of independent variables to be used in a final model. It involves adding or removing potential explanatory variables in succession and testing for statistical significance after each interaction. The result of stepwise multiple regression analysis done was presented in the following table.

Table 4. 19 Multiple regression analysis of service quality dimensions on overall service quality

Model Summary								
Model	R	R Square	Adjusted R Square	R	Std. Error of the Estimate	Durbin-Watson		
1	.501 ^a	.251	.240		.548			
2	.543 ^b	.295	.274		.536	2.5		
a. Predictors: (Constant), Tangibility								
b. Predictors: (Constant), Tangibility, Empathy								
c. Dependent Variable: Overall service quality								
Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.691	.250		10.754	.000		
	Tangibility	.343	.072	.501	4.771	.000	1.000	1.000
2	(Constant)	2.419	.279		8.683	.000		
	Tangibility	.239	.087	.349	2.758	.007	.657	1.523
	Empathy	.178	.087	.259	2.043	.045	.657	1.523
a. Dependent Variable: Overall service quality								

Source: Own survey, 2022

As shown in Table 4.19 the multiple regression analysis has excluded service quality dimensions consistency, reliability, responsiveness and assurance and considered tangibility and the interaction of tangibility and empathy as a statistically significant

predictor of overall service quality. This indicates that four of the independent variables did not contribute to the fitness of the model so they were not included in the regression results.

In the model summary table above the R square value of 0.251 for tangibility and 0.295 for tangibility combined with empathy indicated that these independent variables explain the variation in dependent variable overall service quality by 25.1% and 29.5%, respectively. Accordingly, we can infer tangibility contributes for 25.1% of the variation in perception of overall service quality while tangibility with empathy contributes for 29.5% variation on dependent variable overall service quality.

This implies that the rest 70.5% or 74.9% of overall service quality is explained by other variables than the two independent service quality dimensions and the four excluded service quality dimensions (reliability, responsiveness, assurance, empathy and consistency) too. Hence the independent variables, service quality dimensions, considered in this study need improvement to determine overall service quality in a better way. Thus, future research on service quality of inspection and certification sector, need to investigate more service quality dimensions that better predict overall service quality. Or need to incorporate a much contextualized description of inspection and certification service that fits to the items of service quality dimensions and improve the predictive power of the identified dimensions.

The findings above in Table 4.19 (Coefficients^a) showed that P values for tangibility and tangibility with empathy are less than alpha level of .05. These indicate that service quality dimensions tangibility and tangibility with empathy have a significant influence on overall service quality at 95% confidence level. The findings showed that the B coefficients relating to these services quality dimensions to overall service quality were estimated statistically significant with positive sign. This indicates that as service quality dimension tangibility or tangibility with empathy increases overall service quality also predictably increases. We would expect that for every one unit increase in tangibility, there would be a 0.501 unit increase in overall service quality. While there would be a 0.349+0.259 unit increase in overall service quality for every one unit increases in tangibility with empathy.

This partially supports our conceptual model and we conclude that service quality dimension tangibility and tangibility with empathy is a significant predictor of overall service quality. Therefore, as shown in the above result tangibility and tangibility with empathy were the most important service quality dimension that has predictable effect on overall service quality perception of CLU customers. If CLU intend to improve its overall service quality strategically it should focus on these relatively dominant dimensions.

4.6.5 Effect of service quality dimensions on overall customer satisfaction

Similarly multiple regression analysis was employed to examine the effect of service quality dimensions on customer satisfaction. To identify which independent variables interaction contributed to overall model fit farther stepwise regression analysis was done. The following table presents the results of stepwise regressions analysis.

As shown in Table 4.20 the regression analysis has excluded five service quality dimensions and considered only consistency as a statistically significant predictor of overall customer satisfaction. This indicates that all the five independent variables (tangibility, empathy, reliability, responsiveness and assurance) did not contribute to the fitness of the model so they were not included in the regression results.

In the model summery below the R square value of 0.191 for consistency indicated that this independent variable explains the variation in dependent variable overall customer satisfaction by 19.1%. From this we can infer consistency of the service contributes for 19.1% of the variation in perception of overall customer satisfaction.

Table 4. 20 Multiple regression analysis of service quality dimensions on overall customer satisfaction

Model Summary ^b								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson			
1	.437 ^a	.191	.179	.606	2.343			
a. Predictors: (Constant), Consistency								
b. Dependent Variable: Overall customer satisfaction								
Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.633	.290		9.088	.000		
	Consistency	.300	.075	.437	4.006	.000	1.000	1.000
a. Dependent Variable: Overall customer Satisfaction								

Source: Own survey, 2022

On this study the other variables tangibility, empathy, reliability, responsiveness and assurance were not found as significant predictor of customer satisfaction. The rest 80.9% of overall customer satisfaction could be explained by other factors or variables out of the scope of the study.

Hence the independent variables, service quality dimensions, considered in this study need improvement to determine overall customer satisfaction in a better way. Thus, future research on service quality of inspection and certification sector, need to investigate more service quality dimensions that better predict dependent variable overall customer satisfaction. Or need to incorporate a much contextualized description of inspection and certification service that fits to the items of service quality dimensions and improve the predictive power of the tested dimensions.

In determining independent variable, consistency, effect on dependent variable, overall customer satisfaction, the table above disclosed its significant influence with $P < 0001$ level. The degrees of the influence for consistency Beta coefficient values are positive ($\beta = 0.300$). Thus, it can be concluded for every one unit improvement in service consistency dimension there would be a 0.300 unit increase in overall customer satisfaction of CLU.

This finding agrees with the argument of Richard and Allaway (1993) . They suggest utilizing only functional quality attributes to explain and/or predict consumers' behavior might be a misspecification of service quality and have low predictive validity. In line with their argument all the five SERVPERF functional service quality dimensions (empathy, reliability, tangibles, responsiveness and assurance) were not found as significant predictor of customer satisfaction. Only the technical service quality dimension, consistency, is found as significant predictor of customer satisfaction. This supports the argument of this study for consideration of additional technical or service outcome measuring dimension like consistency in study of inspection and certification sector service quality and customer satisfaction besides the commonly considered five SERVPEF model service quality dimensions.

This partially supports our conceptual model and we conclude that service quality dimension consistency is a significant predictor of overall customer satisfaction of inspection and certification service provided by CLU. Therefore, as shown in the above result consistency, getting consistent inspection and certification result was the most important service quality dimension in predicting the satisfaction of CLU customers.

If CLU need to attain its one of organizational value, striving to satisfy customers, or improve its overall customer satisfaction it can address at least 19.1 % of its customer satisfaction level by considering consistency dimension in its improvement plan.

In line with Agbor (2011) finding this finding suggests to provide quality service and satisfy customers organization in service sectors need to improve on the dimensions of service quality and other factors that could be as reasons for satisfaction by customers .

4.6.6 Effect of overall service quality on overall customer satisfaction

Besides the association of overall customer satisfaction with 25 items measured independent variables, service quality dimensions, as per the conceptual model of this study one scale measured overall service quality link with customer satisfaction was seen. Here the MR analysis is done by considering overall service quality as independent variable and overall customer satisfaction as dependent variable.

As shown in Table 4.21 the R square value of 0.317 found between overall service quality and customer satisfaction was higher than the significant service quality dimension, consistency (0.191), was also highly significant ($p < 0.0001$). It may thus be assumed that considering overall service quality for improvement of overall customer satisfaction would lead to the attainment of 31.7% level of customer satisfaction. Hence it could be a better predictor of overall customer satisfaction than service quality dimensions in Ethiopian context for case of CLU customers which are in rush and not patient to fill the long service quality item of SERVIPERF.

Table 4. 21 Multiple regression analysis of overall service quality on overall customer satisfaction

Model Summary ^b								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson			
1	.563 ^a	.317	.307	.557	1.972			
a. Predictors: (Constant), Overall service quality								
b. Dependent Variable: Overall customers satisfaction								
Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.456	.415		3.507	.001		
1	Overall Service quality	.599	.107	.563	5.614	.000	1.000	1.000
a. Dependent Variable: Overall Customer satisfaction								
N=70 F=31.515 df=1 p<0.0001								

Source: Own survey, 2022

The degrees of the influence for overall service quality Beta coefficient value was positive ($\beta = 0.599$) which was greater than what was found from service quality dimension ($\beta = 0.300$). Accordingly, a unit improvement in overall service quality leads to 0.599 unit increase in overall customer satisfaction of CLU, other things remain constant. From this we can conclude overall service quality has better effect on satisfaction of CLU customers than the six service quality dimensions considered under this study.

4.7 Required Improvements on Services Quality Dimensions

Assessment of service quality of inspection and certification sector with commonly used service quality models is very rare (Liu et.al, 2015; Cui et.al, 2017). Unlike other service sector it is less researched industry. To fill this theoretical gap there was one research question raised on this study. Its objective was to investigate important service quality dimensions that best describe or measures inspection and certification sector service quality and customer satisfaction from CLU customers' case in Ethiopia.

Thus on the end of survey instrument the respondents were requested to give their suggestion about important service quality dimensions from perspective of service sector they are evaluating. The question was "For inspection and certification service quality and customer satisfaction assessment what do you suggest to get considered in the future study". From the 70 valued survey respondents 37 attempted to respond the open ended question. Out of the 37 respondents' response the response that directly related with the question were considered.

Accordingly, 60 valued responses were found. Then the list of service quality dimensions and items suggested by respondents organized, stratified and summarized using check sheet. The categories were improvement suggestions for new service quality dimensions and items to get considered under the present service quality dimensions. The table below showed the frequency of the response for the suggested improvements by 37 sample CLU customers.

Table 4.22, reveals 60 responses that suggested 4 new service quality dimensions and a detailed service quality items descriptions that fail in to category of responsiveness, reliability and tangibility to get considered in future CLU inspection and certification service quality and customer satisfaction study. Most customers suggested new service quality dimension to get considered in future study of inspection and certification service quality was efficiency while agility was recommended by only one respondent. The most frequently suggested existing dimensions improvement responses by CLU customers were

responsiveness service quality dimension items like punctuality and apt inspection and certification result delivery time.

Table 4. 22 Proposed service quality dimensions and items improvement for future study

Response frequency	Proposed Improvements
New service quality dimensions	
13	Efficiency
16	Transparency
3	Fairness/ Impartiality
1	Agility
Items to be considered in existing service quality dimensions	
18	Punctuality, apt inspection and certification result delivery time which should be considered under items of responsiveness dimension
13	System based modern service delivery which can be considered under items of tangibility
6	Professionalism, perfection and responsibility on service delivery which can be considered under the items of reliability

Source: Own survey, 2022

To triangulate the research finding structured interview and observation of service delivery process and outcome has been done. Out of 10 interviewed respondent three respondents reflect that the service quality of CLU is moderate and their satisfaction is also moderate. The other seven respondents agree as CLU is providing quality service that satisfy them which in lines with the survey findings.

According to Birhanu and Daniel (2014) identification and awareness of customers' expectation are the starting points for embarking upon quality improvements. Thus, during the interview, the study tried to identify customers' quality service requirements that will

be an input for quality improvement initiatives from CLU or any interested party. Their quality service requirements also align with the finding on Table 4.22. Respondent customers' quality service requirements from CLU were as follows:

CLU customers service quality requirements

- On time service delivery (inspection and certification result delivery)
- Professional service
- Modern and system based service
- provision of the right inspection and certification result
- Integrated service
- Corruption free impartial service
- Adequate employ that delivers the service
- Loyalty
- Empathy
- Responsive service
- Accessibility

Out of the list of requirements, on time service delivery, modern and system based responsive service with professional and adequate staff to serve the customers were the most frequently pointed out measure of inspection and certification service provided by CLU. This shows that there were unaddressed requirements of CLU customer on service quality dimensions or items on the study that lead to weak to moderate association and also less predictive power of most of service quality dimensions with overall service quality and customer satisfaction.

Kaur, and Sharma (2014) suggest that to know the factors that contribute towards building service quality industry and assess the customer perception quality requirements particular to given industry need to be identified. If the service quality is measured through well-defined dimensions related to concerned industry it will be more informative to stakeholders. It will help them adopt suitable strategy that improve the level of perceived service quality and attain customer satisfaction. Thus, this finding will be a base for future study to build on the requirements and able to develop the right sector specific dimensions that measure service quality and customer satisfaction well.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary, conclusion and contributions of the study to knowledge, recommendations and areas for further research.

5.1 Summary of Findings

The study was conducted on assessment of service quality for improved customer satisfaction in the case of Ethiopian coffee quality inspection and certification center. It was undertaken to know the service quality of CLU and establish a relationship between service quality dimensions and overall service quality and customer satisfaction. Farther more, investigation of the effect of service quality dimensions on overall service quality and customer satisfaction of inspection and certification sector with the required improvement suggestion on service quality dimensions for future study has been undertaken. The study used modified SERVPERF model with self-administered questionnaire that contained 25 performance statements related to the six service quality dimensions and additional 2 question on overall service quality and overall customer satisfaction. The data were analyzed using SPSS version 20 through descriptive and inferential statistics.

In order to undertake the study, 85 questionnaires were distributed and 70 have been duly filled and returned. The analyses of this study were done based on 70 customers' responses. The demographic data showed that majority of the respondent (82.9%) were diploma and above graduates. 56 % of the respondents hold agent position. Proportionally respondents with less than one year (30 %) to more than three years' (38.58%) experience about CLU

inspection and certification service have been involved. 88.6% of respondents represent a client organization of more than one to more than ten years with export frequency of more than 3 times per year. Hence these respondents (81.4%) were customers who at least visit CLU for inspection and certification service four times or more per year if not every day and weeks in case of large exporters. As per last year/2013 E.C. inspection and certification service these clients have experienced no sample reject (24.3%) to more than 5 times sample reject (12%) by CLU and rework to meet the requirement and export their coffee.

Service quality description result at items level showed mean score of 3.6 for all measured service quality dimensions items indicating that the customers agree on provision of quality service by CLU. Customer's perception rate for service quality dimensions items ranges from the highest mean score of 4.01 for assurance item, "**P11**- You as a customer of CLU feel safe in using inspection and certification services from CLU" to the lowest of **3.23** for responsiveness item "**P9**-Employees of CLU will never be too busy to respond to your request quickly".

Service quality description result at dimensional level show a central tendency value of 4 which indicates that the customers agree on provision of all six service quality dimensions by CLU. While the mean score showed a variation from highest value for assurance (3.81) followed by consistency (3.74), reliability (3.61) and responsiveness (3.54) to the lowest value for empathy (3.49) and tangibility (3.36). This indicated though on average the customers agree on existence of the former four service quality dimensions, they were neutral for empathy and tangibility of the service provided by CLU.

Overall service quality perception mean result of 3.84 indicated that overall inspection and certification service provided by CLU was good. Majority of the respondents (77.1) perceived that CLU was providing good to very good service. Similarly overall customer satisfaction mean value (3.76) result indicated that customers were satisfied with the level of inspection and certification service CLU provides them.

The Pearson's correlation coefficient was used to know the relationship between service quality dimensions, overall service quality and customer satisfaction. The result showed

that there were a positive and significant relationship between the service quality dimensions and both dependent variables. The link of service quality dimensions with overall service quality showed the highest correlation between tangibility and overall service quality (0.501) followed by empathy (0.463), consistency (0.454), and assurance (0.449) and reliability (0.401), respectively. The lowest correlation is observed between responsiveness and overall service quality (0.384). Comparably the link of six service quality dimensions with overall customer satisfaction showed the highest correlation between consistency and customer satisfaction (0.437) followed by tangibility (0.427), reliability (0.417), assurance (0.349), and the remaining dimensions responsiveness (0.299) and empathy (0.267) respectively. The measure of association for both cases range from moderate to weakest.

Regression analysis for

- Effect of independent variables, six service quality dimensions, on overall service quality has excluded service quality dimensions consistency, reliability, responsiveness and assurance and considered tangibility and the interaction of tangibility and empathy as a statistically significant predictor of overall service quality. The result indicated that the independent variables tangibility can explain the variation on dependent variable, overall service quality, by 25.1% while the interaction of tangibility and empathy could explain 29.5% of variation.
- Effect of six service quality dimensions on overall customer satisfaction has considered only consistency as a statistically significant predictor of overall customer satisfaction. According to the result 19.1% of the variation in perception of overall customer satisfaction could be contributed by service quality dimension consistency.
- Effect of overall service quality on customer satisfaction has revealed 31.7% level of customer satisfaction could be explained from perception of overall service quality even with a better prediction value than the six service quality dimensions.

Survey result on required improvements on services quality dimensions for inspection and certification service quality and customer satisfaction assessment for future study revealed

the following. According to CLU customers 23 responses that suggest for incorporation of 4 new service quality dimensions and 37 responses for better qualification or description of the existing service quality dimensions items were found. The newly proposed 4 service quality dimensions were efficiency, transparency, fairness/ impartiality, and agility. While the suggested detailed service quality dimensions items descriptions categorized under responsiveness, reliability and tangibility.

5.2 Conclusions

Service quality study in inspection and certification sector is rare. The purpose of this study was to assess the level of service quality and to identify the most important service quality dimensions that influence overall service quality and customer satisfaction of inspection and certification service with improvements on service quality dimensions from the case of CLU in Ethiopia. To attain this objective the study developed a conceptual framework. According to the conceptual framework modified SERVPERF model which considered additional one technical service quality dimension (consistency) besides the commonly used five functional service quality dimensions was developed and tested.

Since mean value of all 25 service quality dimensions items (3.6) and central tendency for six service quality dimension, overall service quality and overall customer satisfaction were high (4) it is possible to conclude CLU is providing good quality service that satisfies its customer. CLU is a quality infrastructure standing to ensure quality in the most economically important commodity, coffee, for the country. As stated in statement of the problem of this study the sector is characterized by high nonconformance cost, quality inconsistency and quality control that affect its competitiveness in world market. This study customers' perception about the level of service quality and customer satisfaction proves that CLU service was not the key contributor of quality problem experienced in the sector.

The slight mean score difference among the six service quality dimensions ranges from highest for assurance to the lowest for empathy and tangibility. The dimensions empathy and tangibility which the customers were neutral to agree for its existence in CLU service need attention from CLU management for improvement. CLU needs to improve these dimensions by providing modern service with modern physical facilities and equipment and also assigning employs that give individual attention to customers.

Service quality dimensions (tangibility, reliability, responsiveness, empathy, assurance and consistency) have direct and moderate to weak association with overall service quality and customer satisfaction. Tangibility followed by empathy have the highest correlation with overall service quality while consistency followed by tangibility have the highest association with overall customer satisfaction of inspection and certification service. Relatively responsiveness was the lowest associated dimension with overall service quality and customer satisfaction while empathy showed the second highest with overall service quality but lowest with customer satisfaction. Thus, practitioners should need to identify and prioritize the most important dimensions for the type of improvement strategy they are planning.

The study investigated tangibility and the interaction of tangibility and empathy as a statistically significant predictor of overall service quality. Since quality is about meeting and exciding customer requirement in continues base. If CLU intends to take overall service quality improvement measures it needs to give priority for tangibility and empathy dimensions

For better prediction of variation on dependent variable, customer satisfaction, service quality studies in inspection and certification sector need to consider more technical service quality dimensions like consistency than functional service quality dimensions which were found as insignificant predictors.

For quick general assessment one scale overall service quality dimension can serves as alternative tool to measure service quality and predictor of customer satisfaction than

SERVPERF model 22 or more service quality dimensions items as it has shown comparable predictive value in the study.

5.3. Recommendation

Generally, CLU was providing quality service that satisfied its customers. But service quality dimensions tangibility and empathy which were a significant predictor of overall service quality actually got the lowest mean. This indicates that there is still a room for improvement which CLU has to work on. Thus, CLU need to provide system based modern service with modern physical facility and equipment and also assign adequate employees that could give individual attention for its customers.

Inspection and certification service has tangible outcome. Customer of such service may get satisfied with what they get from the service (technical) than how the service delivery process (functional) has been. The common service quality models including SERVPERF measures only the functional service quality dimension. This study tried to incorporate one technical service quality dimensions on five SERVPERF model measured service quality dimensions. The finding proved that the technical service quality dimension, consistency, was the only significant predictor of customer satisfaction in the case of CLU customer. Thus, future studies on service quality for customer satisfaction in inspection and certification sector need to consider more technical service quality dimensions which have better predictive power/influence on customer satisfaction along the functional dimensions.

The independent variables, six service quality dimensions, considered on this study explained only 29.5% of the variation on overall service quality and 19.1% of customer satisfaction. To explain the remaining 70.5% and 80.9% of the variations in overall service quality and customer satisfaction, respectively, future studies need to consider more variables with better predictive power. And also need to qualify the existing dimensions with more customer requirement based items. For instance, in CLU case service quality dimensions like efficiency, transparency, fairness/ impartiality, and agility could be

incorporated. While the existing dimensions responsiveness, reliability and tangibility items could be better described with sector specific customer requirement based terms.

To generalize the findings about the relationships between service quality and customer satisfaction in inspection and certification sector this study should be replicated to similar organizations in the sector by considering large sample which is more than this study sample.

REFERENCES

- Adugna Debela, (February 2019). Ethiopia Coffee sector policy reform. A paper presented at 17th African Fine Coffees Conference & Exhibition, Kigali.
- Al Bassam, T., & Al Shawi, S. (2011, April). Analysing the use of the SERVQUAL model To measure service quality in specific-industry contexts. In Proceedings of 14th International Business Research Conference.(P. 9)
- Agbor , Jenet M. (2011). The Relationship between Customer Satisfaction and Service Quality: a study of three Service sectors in Umeå. Unpublished Master's Thesis, Umeå School of Business.
- Anderson, E.W. and Fornell, C. 1994. A customer satisfaction research prospectus. In Rust, R.T. & Oliver, R.L. (Eds). 1994. Service Quality: New directions in theory and practice. Thousand Oaks, CA: Sage Publications. 241-268.
- Asubonteng, P., McCleary, K. J. & Swan, J. E. (1996). SERVQUAL revisited: a critical review of service quality. Journal of Services marketing, 10:6, 62-81.
- Argaie S.T. (2021). The Impact of Exchange Rate on Ethiopia's Coffee Export. European Scientific Journal, ESJ, 17:23, 27-38 . <https://doi.org/10.19044/esj.2021.v17n23p27>
- Bahia, K., and Nantel, J. (2000). A reliable and valid measurement scale for the perceived service quality of banks. The International Journal of Bank Marketing, 18 :2, 84-98.

- Bealu G. A. (2021). Factors Affecting Coffee (*Coffea Arabica L.*) Quality in Ethiopia: A Review. American Journal of Agriculture and Forestry, 9: 5, 283-291.
- Berhanu Gezahegn, (2020). Quality Management Practice and performance of Coffee Processing and Exporting Firms in Ethiopia. Unpublished Master's Thesis, St. Mary's University.
- Berihanu Amsalu, (2021). Macroeconomic Factors that Affect Export Prices of Coffee in Ethiopia. Unpublished Master's Thesis, St. Mary's University.
- Berhanu Tolcha, (2017). Research Conducted on the Commodity Study of Ethiopian Coffee. Unpublished study, Awash Bank.
- Berihanu Amsalu, (2021). Macroeconomic Factors That Affect Export Prices of Coffee in Ethiopia. Unpublished Master's Thesis, ST. MARY'S UNIVERSITY.
- Birhanu, B. and Daniel, k. (2014). Quality management practice in Ethiopia. African Journal of Business Management 8:17, 689-699. DOI: [10.5897/AJBM2013.1624](https://doi.org/10.5897/AJBM2013.1624)
- Birhanu , B., Ephrem G. and Assefa, L. (2015). National cost of quality in Ethiopian import–export. Total Quality Management & Business Excellence, 28, 118-129.
- Boansi, D. and Crentsil, C. (2013). Competitiveness and determinants of coffee exports, producer price and production for Ethiopia. Journal of Advanced Research in

Economics and International Business, 1:1, 31–56.

Cui, L.X., Liu, R. and Qiu, K.C. (2017). Applying fuzzy TOPSIS in B2B service quality measuring: China certification and inspection industry. International Conference on Service Systems and Service Management, 1-5.

Cronin, J.J. and Taylor, S.A. (1992). Measuring service quality: A re-examination and Extension. Journal of Marketing, 56:3, 55-68.

David B. (2013). Competitiveness and Determinants of Coffee Exports, Producer Price and Production for Ethiopia. Journal of Advanced Research in Economics and international Business,1:1,31-56.

Girma Dejene, (2017). The Effect of Service Quality on Customer Satisfaction: The Case of Dashen Bank S.C. Unpublished Master's Thesis, Addis Ababa University.

Grönroos, C. (1984). A Service Quality Model and its Marketing Implications. European Journal of Marketing, 18, 36-44.

Demissie, M., Tsegaye, D., Beshah, B. and Ebinger, F. (2021). Quality infrastructure services capability assessment in the coffee value chain. International Journal of Quality and Innovation, 5:2, 158-180.

Getachew, S. (2017). Status of Forest Coffee (*Coffea arabica* L.) Diseases in the Afromontane Rainforest Areas of Ethiopia: A review. Greener J. Agric. Sci.,7, 19–31.

Habtam, D. (2019). Review on Factors which Affect Coffee (*Coffea Arabica* L.) Quality in South Western, Ethiopia. International Journal of Forestry and Horticulture (IJFH) ,5:1,12-19.

- Hana Mulugeta, (2018). Assessment of Practices and Challenges of Coffee Export Marketing: In the case of Ethiopian Coffee and Tea Authority. Unpublished Master's Thesis, St. Mary's University.
- Liu, R., Cui, L., Zeng, G., Wu, H., Wang, C., Yan, S., & Yan, B. (2015). Applying the fuzzy SERVQUAL method to measure the service quality in certification & inspection industry. Appl. Soft Comput., 26, 508-512.
- Jain, S.K., and Gupta, G. (2004). Measuring Service Quality: Servqual vs. Servperf Scales. Vikalpa: The Journal for Decision Makers, 29:2, 25 - 38.
- Kang, G., & James, J.D. (2004). Service quality dimensions: an examination of Grönroos's service quality model. Managing Service Quality, 14:4, 266-277.
- Kamakoty, J. and Sohani, N. (2016). Measurement of service quality of upstream and downstream supply chain. Int. J. Services and Operations Management, 25:1, 99–119.
- Kaur, R. and Sharma, J. (2014). Assessment of Service Quality – a Conceptualframework. International Journal of Marketing and Human Resource Management (IJMHRM), 5:1,33-41.
- MacEachron. (1982). Basic Statistics in the Human Services: an Applied Approach. University Park Press,
- Mikru, T.(2019)." Review on Post-Harvest Processing Operations Affecting Coffee (Coffea Arabica L.) Quality in Ethiopia", International Journal of Research Studies in Science, Engineering and Technology, 6:9, 25-35.

- Muluadam, A. (2015, February). Introduction to SPSS for windows, Version 20. Training Manual (PPT).Public Policy & Management FBE, AAU, Ethiopia.
- Nguyen, T.V., Nguyen, N.C. and Bosch, O.J.H. (2015). Coffee processing management to increase green coffee quality: a systems thinking approach. Int. J. Markets and Business Systems, 1:3, 181–195.
- Oliver, R. L. (1977). Effect of expectation and disconfirmation on postexposure product evaluations: An alternative interpretation. Journal of Applied Psychology,62:4,480–486.
- Ushantha, R.A., Wijeratne, A.W., & Samantha, P. (2014). Customers' Perception on Service Quality towards Satisfaction: An Application of SERVPERF in State Sector Banks in Sri Lanka. European Journal of Business and Management, 6:4, 72-81.
- Segenet Gashaw (2020). The Impact of Organizational Culture on Service Quality: The Case of Coffee Quality Inspection Center. Unpublished Master's Thesis, St. Mary's University
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research, Journal of Marketing,49,41-50.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64:1, 12–40
- QSAE (Quality and Standards Authority of Ethiopia), 2000. Training manual on introduction to ISO 9000: Quality management system, QSAE, Addis Ababa, Ethiopia.

- Ramya, N., Kowsalya, A. and Dharanipriya, K. (2019). Service Quality and its Dimensions. EPRA International Journal of Research and Development (IJRD), 4:2, 2455-7838
- Richard, M.D., and Allaway, A.W. (1993). Service quality attributes and choice behaviour. Journal of Services Marketing, 7, 59-68.
- Rasyida, D.R., Ulkhaq, M.M., Setiowati, P.R., & Setyorini, N.A. (2016). Assessing Service Quality: A Combination of SERVPERF and Importance-Performance Analysis. MATEC Web of Conferences. 68,1-5.
- Saunders, M., Lewis, P., & Thornhill, A. (2007). Research methods for business students, 5th edition, Great Britain, Prentice Hall.
- Sehhat, S. Ehsanfar, G. and Aslebagh, S. 2012. The role of ethics in reduce cheating of the Insurance companies from customers' view. Journal of Akhlagh dar Oloum Raftari,1,1-9.
- Shiferaw Mitiku (2021, March). Roasted coffee export value chain in Ethiopia. A paper presented at National workshop on Fostering Integration of the Ethiopian Roasted Coffee Value Chain into Regional Value Chains, United Nations Conference on Trade and Development, Addis Ababa.
- Srinita , S. (2019). The effect of service quality, innovation towards competitive advantages and sustainable economic growth: Marketing mix strategy as mediating variable, Benchmarking: An International Journal,26:4, 1336-1356.
- Sureshchandar G.S., Rajendran C, and Anantharaman R.N. (2002).The Relationship between Service Quality and Customer Satisfaction – a factor specific approach.

Journal of Services Marketing, 16:4 , 363–379.

Teferi, D. (2018). Status of Major Coffee Diseases of *Coffea arabica* L. in Afromontane

Rainforests of Ethiopia. A Review. Food Sci. Qual. Manag, 76, 35–40.

Wang, Y., Lo, H.P., & Hui, Y.V. (2003). The antecedents of service quality and product quality and their influences on bank reputation: evidence from the banking industry in China. Managing Service Quality, 13, 72-83.

Yamane, T. (1967). Elementary Sampling Theory. Englewood Cliff, N.J.: Prentice-Hall.

Yishak, W. W., Shimelis, A.E. and Tarekegn, B.E.(2019). Assesment of Physical Properties and Sensory Qualities of Ethiopian Speciality Washed Green Coffee Beans. Annals. Food Science and Technology, 20:4, 865-876.

Zikmund, W., Babin, B., Carr, J., and Griffin, M. (2010). Business Research Methods. 8th Edition. Mason, OH: South-Western Cengage Learning.

APPENDIX

Survey Questioners

Dear respondent,

I am Meron Belayneh. I am currently conducting research which will be submitted to the St. Mary's university, School of Graduate Studies, Institute of Quality and Productivity Management in partial fulfillment of the requirements for a Masters' degree in Quality and Productivity Management.

The general purpose of my study is to assess the service quality and its contribution to customer satisfaction of Ethiopia Coffee Quality Inspection and Certification Center (CLU). As you know CLU is a place where your export coffee is finally tested and certified to be fit or unfit for export. Thus, I am inviting you to participate by filling up this questionnaire. Your genuine response makes the research very much valuable.

The information you provide will only be used for academic research purpose and will remain strictly confidential. You will not be identified in any way in the results as only aggregated results will be reported. For any questions relating to this questionnaire please call or telegram me with 0911759280 or email destamegen@yahoo.com.

Thank you in advance for your time and willingness to participate in this survey.

Sincerely,

Meron Belayneh

SECTION ONE: BACKGROUND INFORMATION

(Please tick (✓) on the most appropriate response in the box)

1. What is your highest Educational level:

Below 10 Grades 10th/12th Complete College Diploma
First Degree Master and above

2. What is your position in the organization?

Manager Agent Expert

Other, Please specify _____

3. For how long have you been assigned by your organization to follow export coffee quality inspection and certification process delivered by Coffee Quality Inspection and Certification Center (CLU)? month 6 Months Years

1- 3 Years 3- 6 Years Above 6 Years

4. For how long has your organization been a client of Coffee Quality Inspection and Certification Center (CLU)?

1 year 1-3 years 3-6 years 6-10-years Above 10
years

5. How many times do you export per year? For example in 2013 E.C

Only once Twice Three times More than three times

6. During last year export,2013 E.C, how many times per year your export coffee get unfit by CLU and rework it to be fit and get exported ?

No Only once 2-3 times 4-5 times
 More than five times

SECTION TWO: Coffee Quality Inspection and Certification Center (CLU) Customers Perceptions about Service Quality

Based on your experience as a customer of CLU, please think about the service provided (Inspection and certification of export coffee). The following statements measure your feelings about the services provided by CLU. For each statement, please show the extent to which you agree or disagree that CLU has the features described by the statement. In all the sections, selecting number **1** means that you **strongly disagree** CLU has that feature, and selecting a **5** point on the scale means that you **strongly agree with the presence of the feature**. You may also circle any one of the numbers between 1 and 5 that reflects your feeling regarding CLU services.

There is no right or wrong answer, all we are interested in is a rating that best shows your Perceptions /feeling about CLU services. Please **circle** only one number of your best choice as a response. (Note: **1= strongly disagree, 2=disagree, 3= neither agree nor disagree, 4= agree and 5= strongly agree**)

**Strongly
disagree**

**Strongly
agree**

1

2

3

4

5

Service quality dimensions	Perception Scale				
Reliability					
1. When CLU employees —promises to do something by certain time, they do so	1	2	3	4	5
2. When you have problem, CLU shows a sincere interest in solving it	1	2	3	4	5
3. CLU performs the service dependably (e.g standardization, take the right sample, inspect and certify right the first time)	1	2	3	4	5
4. CLU provides the service at the time they promise to do so/required. (Assign samplers, provision of inspection and certification result on time)	1	2	3	4	5

5. CLU insists on error free records/keep accurate information (e.g. proper coding of sample, right result/grade)	1	2	3	4	5
Responsiveness					
6. Employees of CLU -inform you as customer, exactly when services will be performed	1	2	3	4	5
7. Employees of CLU give you as a customer prompt/quick service	1	2	3	4	5
8. Employees of CLU are always willing to help you	1	2	3	4	5
9. Employees of CLU will never be too busy to respond to your request quickly	1	2	3	4	5
Assurance					
10. The behavior of CLU Employees instills confidence in you/you trust them	1	2	3	4	5
11. You as a customer of CLU feel safe in using inspection and certification services from CLU	1	2	3	4	5
12. Employees of CLU are consistently polite and friendly to you as their customer	1	2	3	4	5
13. Employees of CLU have adequate knowledge to answer your question	1	2	3	4	5
Empathy					
14. As a customer CLU gives you individualized attention	1	2	3	4	5
15. CLU has assigned employees that gives personal service to its customers	1	2	3	4	5
16. Employees of CLU understand the specific needs of their customers	1	2	3	4	5
17. The employees of CLU have their customers' best interests at heart	1	2	3	4	5
18. CLU has working hours convenient to all their customers	1	2	3	4	5
Tangibles					
19. CLU has up- to -date/latest inspection and certification service	1	2	3	4	5
20. CLU physical facilities(building, laboratories, stores) are visually appealing	1	2	3	4	5
21. Employees of CLU have a neat appearance	1	2	3	4	5
22. CLU has up-to-date and visually appealing materials/ equipment associated with the service	1	2	3	4	5
Consistency					
23. CLU always give the right inspection and certification result	1	2	3	4	5
24. Always Coffee which doesn't fulfill the requirement inspected and certified as unfit	1	2	3	4	5
25. Always coffee which fulfill the requirement inspected and certified as fit	1	2	3	4	5

SECTION THREE: Over-all service quality, customer satisfaction, points for improvement (*Please Circle the most appropriate*)

1. How do you evaluate the overall quality of inspection and certification services provided by CLU?

Very Poor	Poor	Fair	Good	Very Good
1	2	3	4	5

2. Overall, how much satisfied are you with the inspection and certification services provided by CLU?

Extremely Extremely Dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	
1	2	3	4	5

3. For inspection and certification service quality and customer satisfaction assessment what do you suggest to get considered in the future study?

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Thank you for participating in this survey.