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## THE IMPACT OF ELECTRONIC BANKING SERVICE QUALITY ON CUSTOMER SATISFACTION DURING COVID-19; WITH REFERENCE TO COMMERCIAL BANKS IN RATHNAPURA DISTRICT

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### ABSTRACT

The study was developed upon three main objectives; which are to identify the impact of e-banking service quality on customer satisfaction during Covid-19 in commercial banks in Rathnapura District, to identify the impact of e-banking service quality on customer satisfaction on both private sector and public sector banks and to identify whether customer satisfaction in e-banking service quality differ based on demographic characteristics. The study followed the positivism philosophy and deductive research logic. The sample of the study consisted of 384 e-banking customers in Rathnapura District and the sampling technique was a combination of stratified sampling and purposive sampling. Hypothesis testing was carried out using the multiple regression analysis and Kruskal-Wallis Chi Square Tests. Subsequently, it was found that reliability, responsiveness, assurance and tangibility have a statistically significant positive impact on customer satisfaction while empathy dimension was insignificant for customer satisfaction during Covid-19. Further, it was found that assurance and tangibility have a statistically significant positive impact on customer satisfaction in public banks in Rathnapura District, while reliability, responsiveness and tangibility have a statistically significant positive impact on customer satisfaction in private banks in Rathnapura District. Moreover, the study found that customer satisfaction in e-banking differs based on demographic factors of Age, Gender & Education.

**Keywords:** e-banking, service quality, customer satisfaction, SERVQUAL, Covid-19.

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### 1. Introduction

The advancement of technology and the employment of technology based systems have created a new paradigm in communicating and providing services to customers in the present customer centric business world. Given the technological innovations in the service industries, the financial sector has experienced tremendous changes in terms of their service offerings for customers (George and Kumar, 2014). Accordingly,

the fusion of traditional banking services offered with the technology and internet, has fostered the emergence of electronic banking services. Electronic banking (e-banking) as defined by Shahriari (2014) is the automated offering of novel as well as conventional banking services and products to clients effectively through electronic, interactive channels of communication.

The main challenge for businesses providing technology-based services and related services is customer satisfaction. The primary factor determining whether a firm will succeed or fail in the future is offering superior customer service (Ejigu, 2016). Hence, modern technology plays a major role in banking and the bankers' attempt is to satisfy customers through electronic banking. With the emergence of COVID-19, followed by prolonged lockdowns across the globe, customer attitudes towards banking changed and the foundation was laid to move from traditional banking to e-banking. Hence, the banking sector highly relied upon e-banking to continue serving clients.

Health habits, people's lifestyles, interactions, inter-personal relationships and purchasing decisions have significantly changed with Covid-19 (Khan et al., 2022). Moreover, education was shifted to online platforms, business organisations heavily leveraged upon online platforms and buyers and sellers too started focusing on electronic means. Accordingly, the concept of E-banking became a topic of conversation among bank customers with the recent Covid-19 pandemic. Sri Lanka observed a 600 percent growth in internet banking and 200 percent growth in payments, over the lockdowns during Covid-19 (Hamza, 2020).

Several local studies have investigated how e-banking, mobile banking, service quality, e-customer loyalty impact customer satisfaction in commercial banks in Sri Lanka (Tharanikaran, Sritharan and Thusyanthy, 2017; Sathiyavany and Shivany, 2018; Perera and Gunaratna, 2020) during the pre-pandemic era. However, only one study has attempted to identify the impact of e-banking service quality on the customer satisfaction of commercial banks in Sri Lanka during the Covid-19 (Priyankara and Weligamage, 2021). Therefore, there is a dearth of research on the impact of e-banking service quality on customer satisfaction in commercial banks in Sri Lanka. Specifically, no studies were found to the best of the authors knowledge that examine the impact of e-banking service quality on customer satisfaction in commercial banks in Rathnapura District in Sri Lanka. Rathnapura District accounts for the sixth highest populated district in Sri Lanka, with its population being 5.4 percent of the total population in the country as of 2021. Therefore, this study attempts to fill the empirical gap in literature by conducting the study to identify the impact of e-banking service quality on customer satisfaction in commercial banks in the Rathnapura District. Furthermore, no studies were conducted to identify whether the demographic factors affect customer satisfaction in Rathnapura District and no studies were carried out to identify the impact of e-banking service quality on customer satisfaction on both private sector and public sector banks separately in Rathnapura District. Hence, this study is of paramount importance in filling the identified empirical gap and contributing to the local body of literature.

This study attempts to answer the question "what is the impact of e-banking service quality on customer satisfaction during Covid-19 in commercial banks in Rathnapura District?".

## Research Objectives

- To identify the impact of e-banking service quality on customer satisfaction during Covid-19 in commercial banks in Rathnapura District
- To identify the impact of e-banking service quality on customer satisfaction on both private sector and public sector banks in Rathnapura District separately during Covid-19
- To identify whether customer satisfaction in e-banking differs by demographic characteristics

## 2. Literature Review

Lustsik (2004) defined e-banking a multiplicity of e-channels for conducting financial transactions over the Internet, telephone, TV, mobile, and computer. According to Bekiris (2022) e-banking is the use of computers and telecommunications to enable banking transactions to be done by telephone or computer rather than through human interaction. In 21<sup>st</sup> century, the e-banking revolution is influencing virtually every facet of everyday activities. E-service quality is about a customer's total evaluation and judgment of the high-quality and excellence of e-service delivery (Santos, 2003). By assuring client satisfaction and strong relationships, e-banking has evolved into an essential service in gaining consumers' loyalty within the banking industry. Most importantly, it is crucial to meet customers' expectations (Berrocal, 2009). As defined by Oliver (1999), customer satisfaction is the "evaluation of the perceived discrepancy between prior expectations and the actual performance of the product". According to studies, providing consumers with high-quality service encourages their loyalty, attracts in new clients, enhances the company's reputation, and ensures the sustainability of the organization (Ladhari, 2009; Negi, 2010).

SERVQUAL model developed by Parasuraman, Zeithaml and Berry (1985) is one of the most widely used instruments for assessing customer satisfaction. Even though potential difficulties in conceptual foundation and empirical operationalization of the scale (Jabnoun and Khalifa, 2005; Landrum, Prybutokb and Zhang, 2007), SERVQUAL was proposed as a suitable scale in measuring the service quality in multitudinal industries (Ladhari, 2009). Therefore, many scholars have used SERVQUAL model in measuring the customer satisfaction towards e-banking (Banerjee and Sah, 2012; Toor et al., 2016; Sathiyavany and Shivany, 2018; Perera and Gunaratna, 2020; Perera and Gunaratna, 2020; Priyankara and Weligamage, 2021).

To identify the impact of e-banking service quality on customer satisfaction in Pakistan, a study was conducted by Toor et al. (2016) using the SERVQUAL model. The study revealed that e-banking customers of Pakistan are fairly satisfied with the service quality offered by the e-banking services. Further, based on the regression analysis, it was revealed that all dimensions of reliability, responsiveness, assurance, empathy, and tangibles have a statistically significant impact on the e-banking service quality in banking customers of Pakistan. When considering all five dimensions as a of predictor of customer satisfaction, the

most significant results were depicted by reliability, followed by responsiveness and assurance. However, results produced for tangibles and empathy dimensions have not been significant.

However, slightly contradicting evidence was found by Ejigu (2016) that examined the effect of e-banking service quality on customer satisfaction in the state owned banks in Ethiopia, following the SERVQUAL model. Based on the regression analysis, it was found that tangibility, reliability, responsiveness and empathy have a significant positive effect on customer satisfaction whereas assurance was found to be insignificant on customer satisfaction.

A comparative study before and during Covid-19 was conducted by Alarifi and Husain (2021) to examine the influence of internet banking services quality on e-customers' satisfaction of Saudi banks. By deploying a modified SERVQUAL model with original dimensions of responsiveness and reliability and newly added dimensions of site organization, user friendliness, personal needs and efficiency, using the multiple linear regression analysis, the study revealed that reliability, site organization, user friendliness, personal needs and efficiency positively impacted the e-customers' satisfaction, while responsiveness negatively impacted the e-customers' satisfaction of Saudi banks before Covid-19. However, after Covid-19, the contradicting results were found with reliability, user friendliness, personal needs and efficiency positively impacted the e-customers' satisfaction, while both responsiveness and site organization negatively impacted the e-customers' satisfaction of Saudi banks during Covid-19.

In the Sri Lankan context, with the objective of identifying the impact of service quality and customer satisfaction, Sivesan (2012) carried out a study with three dimensions of SERVQUAL including reliability, responsiveness and assurance. Upon analysing 143 responses of banking customers in the Jaffna District, using regression analysis it was concluded that a service quality has a positive significant impact on customer satisfaction. Further, the correlation analysis concluded that a positive linear relationship exists between the service quality and customer satisfaction.

Perera and Gunaratna (2020) conducted a study to find the interrelationship between mobile banking service quality attributes, customer satisfaction and customer loyalty, in the mobile banking sector in Sri Lanka in the pre-pandemic era. Using the SERVQUAL dimensions, the researchers have conducted the correlation analysis and concluded that all five dimensions of reliability, responsiveness, assurance, empathy, and tangibles have a positive significant relationship with the customer satisfaction. Furthermore, according to the correlation analysis, the researchers concluded that all five dimensions have a significant positive impact on customer satisfaction; leading to the rejection of the null hypotheses of the study.

On the other hand, Priyankara and Weligamage (2021) have carried out a research to identify the impact of e-banking service quality on the customer satisfaction of commercial banks in Sri Lanka during the Covid-19. The authors have used the E-SERVQUAL dimensions and based on the correlation analysis, it was found that all five dimensions of reliability, assurance, security and privacy, ease of use and empathy have a positive

significant relationship with the customer satisfaction during the Covid-19 era as well, which is similar results to the study by Perera and Gunaratna (2020). Furthermore, as per the regression analysis, the authors concluded that reliability, assurance, security and privacy, ease of use have a positive significant impact on customer satisfaction. However, empathy dimension has a positive insignificant impact on the customer satisfaction.

Following the comprehensive literature review, the authors identified that there is a dearth of research that have attempted to identify the impact of e-banking service quality on customer satisfaction during Covid-19, where only one study has been conducted by Priyankara and Weligamage (2021) on this arena. Furthermore, to the best of authors' knowledge no studies were conducted that examined the impact of e-banking service quality on customer satisfaction in commercial banks in Rathnapura District in Sri Lanka. Moreover, no studies were conducted to identify whether the demographic factors affect customer satisfaction in Rathnapura District and no studies were carried out to identify the impact of e-banking service quality on customer satisfaction on both private sector and public sector banks separately in Rathnapura District. Therefore, this research is significant in filling the identified empirical gap and contributing towards the improvement of local body of literature.

SERVQUAL developed by Zeithaml (1988) is one of the more widely used instruments for assessing customer satisfaction. The questionnaire for the measurement of service quality followed the basic structure of the SERVQUAL instrument as developed by Parasuraman et al. (1991). At the same time SERVQUAL model is used to measure customer satisfaction towards electronic banking in India (Banerjee, 2012).

Again, recently Jaydeb Ray (2018) used SERVQUAL model to measure customer satisfaction towards electronic banking in Bangladesh (Ray, Customer Satisfaction: A Comparative Study of Public and , 2018). Previous research work offers many valuable contributions related to the measurement of service quality using the SERVQUAL model.

**Table 1 : SERVQUAL Model Dimensions**

<b>Variable</b>	<b>Meaning</b>
1. Reliability	Capability to deliver service as promised
2. Responsiveness	Prompt delivery of services to customers
3. Assurance	Knowledge and civility of employees, ensuring safety & delivering trust
4. Tangibles	Outlook of physical equipment and communication resources
5. Empathy	Providing customer care with individualistic approach

(Source: Husnain et al., 2016)

According to Singh and Kaur (2013) the banks are known for their reliability and consistency in performing the banking tasks, however, it is important to portray this dependability through web-based services as well.

Bankers should focus on maintaining customer satisfaction. Parasuraman et al. (1988) also considered reliability of the service as a important factor of service quality. Furthermore Van Gorder also discovered that reliability is the most crucial determinant of service quality (Van Gorder, 1990). According to McNesh (2015); Ali and Raza (2017) responsiveness can retain the interest of users and prompt response can help in enhancing user satisfaction and faithfulness. Areej and Khalid (2021) stated that Responsiveness has a positive effect on ECS. Responsiveness has positive and significant impact on electronic customer satisfaction (Hammoud et al., 2018; Parasuraman et al., 2002). The service provider should have staff who are knowledgeable on the operations of the e-banking so as to convey confidence in the customer even when things are bad in case of the e-banking having a major technical fault, which could take days to correct, the bank should be able to convey the message to customers in a manner that will generate confidence (Ejigu, 2016). Empathy has a significant effect on customer satisfaction in E-banking (Husnain, 2016). The relative less significance of empathy in evaluating e-banking service quality by the users can be attributed to the characteristic of e-banking as cited by (Rowley, 2006) that service in e-banking is virtual, involving no face to face dealings. One reason that can be attached to the less importance of tangibles is that e-banking in Pakistan has not still attained the usability as in the developed countries (Husnain, 2016).

### **3. Research Methodology**

#### **Research Design**

This study followed the positivism philosophy and deductive research logic as the study used existing theoretical proposition in designing the conceptual framework and hypothesis of the study. Therefore, this is a cross-sectional study that followed the quantitative research approach, using the survey strategy.

#### **Population and Sample**

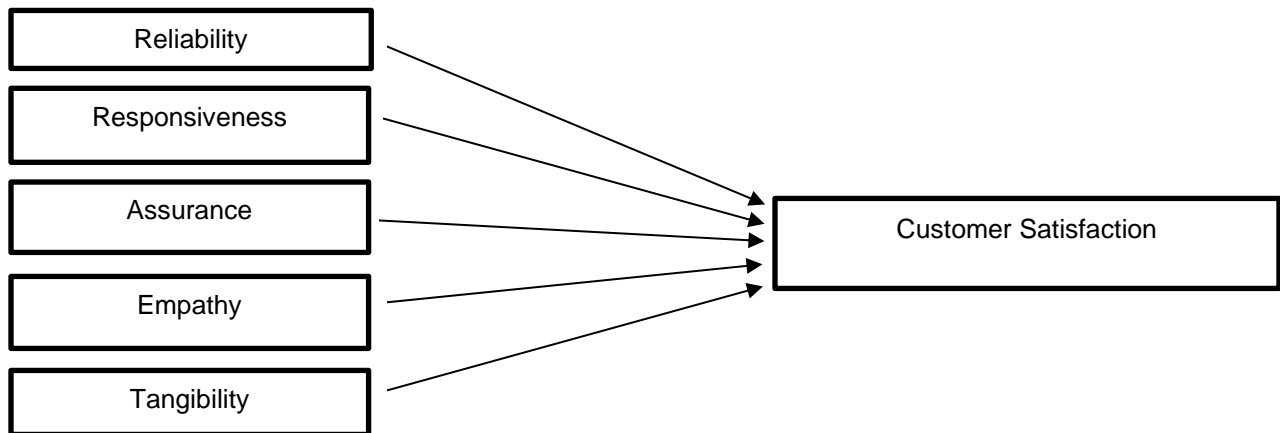
The population of this study is e-banking customers in Rathnapura District. Since, the population size was unknown, the researchers applied the Cochran's formula to decide the sample size and accordingly arrived at 384 e-banking customers as the sample size of the study. The researchers followed a combination of probability and non-probability sampling techniques. Accordingly, first stratified sampling technique was followed where the entire set of commercial banks in Rathnapura District were classified into two strata as private commercial banks and public commercial banks. Afterwards, purposive sampling technique was followed to select two private banks and two government banks, based on the highest number of e-banking customers. Accordingly, People's Bank and Bank of Ceylon (BOC) were selected as the government banks with 16.6% and 13.3% of e-banking customers respectively. On the other hand, Hatton National Bank (HNB) and Commercial Bank were selected as the private banks with 89.5% and 87.5% of e-banking customers respectively (Jayasiri and Weerathunga, 2023).

### Data Analysis Tool

A structured questionnaire, which was adopted for the study based on Toor et al. (2016) and a pilot study with 24 participants was conducted. 334 responses were collected and the researchers used SPSS software to conduct the descriptive analysis, correlation analysis and multiple regression analysis.

### Conceptual Framework

Upon reviewing literature, the following conceptual framework was developed by the authors.



**Figure 1: Conceptual Framework**  
(Source: Toor et al. (2016))

Table 2 below illustrates the operationalisation of independent and dependent variables, with the indicators, measurements, source and the questions testing the relevant indicators.

**Table 2: Operationalisation Table**

Variable	Indicator	Measurement	Source
Dependent Variable- Customer Satisfaction	Customer Satisfaction (CS)	Five Point Likert Scale	Toor et al. (2016)
Independent Variable - Service Quality	Reliability (REL)	Five Point Likert Scale	Toor et al. (2016)
	Responsiveness (RES)	Five Point Likert Scale	Toor et al. (2016)
	Assurance (AS)	Five Point Likert Scale	Toor et al. (2016)
	Tangible (TA)	Five Point Likert Scale	Toor et al. (2016)
	Empathy (EM)	Five Point Likert Scale	Toor et al. (2016)

(Source: Toor et al., 2016)

## **Hypotheses of the Study**

H1: There is a significant positive impact of reliability on e-banking customer satisfaction during Covid-19 in Rathnapura District.

H2: There is a significant positive impact of responsiveness on e-banking customer satisfaction during Covid-19 in Rathnapura District.

H3: There is a significant positive impact of assurance on e-banking customer satisfaction during Covid-19 in Rathnapura District.

H4: There is a significant positive impact of Empathy on e-banking customer satisfaction during Covid-19 in Rathnapura District.

H5: There is a significant positive impact of Tangible on e-banking customer satisfaction during Covid-19 in Rathnapura District.

H6: There is a significant positive impact of reliability on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.

H7: There is a significant positive impact of responsiveness on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.

H8: There is a significant positive impact of assurance on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.

H9: There is a significant positive impact of Empathy on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.

H10: There is a significant positive impact of Tangible on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.

H11: There is a significant positive impact of reliability on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.

H12: There is a significant positive impact of responsiveness on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.

H13: There is a significant positive impact of assurance on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.

H14: There is a significant positive impact of Empathy on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.

H15: There is a significant positive impact of Tangible on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.

H16: Overall customer satisfaction in e-banking service quality differ based on demographic characteristics



## 4. Analysis and Conclusion

### Reliability Testing

The reliability of the questionnaire was assessed using the Cronbach's Alpha with a threshold coefficient value of 0.7 (Hair et al., 2011). Based on the output, as shown in Table 3 below, all variables illustrate an alpha coefficient above 0.7, confirming the reliability.

**Table 3: Reliability**

Variable	Cronbach's Alpha
Reliability	0.830
Responsiveness	0.850
Assurance	0.880
Tangibility	0.880
Empathy	0.900
Customer satisfaction	0.890

(Source: SPSS Output)

### Respondents' Profile

As per Table 4 below, more than 50% of the e-banking users are between the age of 18-25 years and more than 50% of the users are bachelor's degree holders. Further, it is evident that majority e-bankers are private sector employees. Nearly 50% of customers adopted to use e-banking within 1-3 years due to COVID-19 pandemic. Moreover, most of the customers have two bank accounts and normally they are using e-banking weekly basis.

**Table 4: Respondents' Profile**

Demographic Factors		Frequency	Percent
Gender	Male	134	44.7
	Female	166	55.3
Age	18-25	157	52.3
	26-35	48	16.0
	36-45	41	13.7
	46-55	41	13.7
	Above 55	13	4.3
Education level	Primary school	2	0.7
	High school	123	41.0
	Bachelor degree	164	54.7
	Master degree	8	2.7
	Doctoral degree	3	1.0
Marital status	Single	187	62.3
	Married	103	34.3
	Divorced	6	2.0
	Widow	4	1.3

Occupation	Private sector	95	31.7
	Public sector	50	16.7
	Semi-public sector	11	3.7
	Self-employed sector	80	26.7
	Unemployed	64	21.3
Monthly income	Less than 50,000	146	48.7
	50,000- 100,000	70	23.3
	100,000- 150,000	47	15.7
	More than 150,000	37	12.3
Experience in using E-banking	Less than 1 year	89	29.7
	1-3 years	147	49.0
	More than 3 years	64	21.3
How many bank accounts you have	1	74	24.7
	2	146	48.7
	3 or more	80	26.7
How often you use E-banking	Daily	65	21.7
	Weekly	116	38.7
	Monthly	107	35.7
	Yearly	12	4.0
The bank you most engage with	Public	150	50.0
	Private	150	50.0

(Source: Survey Data)

## Descriptive Statistics

Higher mean value indicates that the customers are more satisfied by service quality dimensions and the higher number of standard deviation indicated that the customers are less satisfied by service quality dimensions of the bank. Accordingly, as shown in Table 5 below, Responsiveness has the highest mean value and Reliability has least mean value. Therefore, it may be summarized that respondents are most satisfied with responsiveness variable with a mean and standard deviation of 3.9900 and .63712 respectively. This is followed by assurance, tangibility, and empathy. However, customers are less satisfied with reliability at a mean of 3.92. The satisfaction has a mean score 4.08 which indicates that overall customers are satisfied with the service quality of the bank.

**Table 5: Descriptive Statistics**

	Minimum	Maximum	Mean	Std. Deviation	Variance
Reliability	1	5	3.92	.688	.474
Responsiveness	1	5	3.99	.637	.406
Assurance	1	5	3.97	.690	.476
Tangibility	1	5	3.97	.671	.450
Empathy	1	5	3.95	.682	.465
Customer Satisfaction	1	5	4.08	.665	.442

(Source: SPSS Output)

## Correlation Analysis

To discern the strength of the relationship between the variables, the authors conducted correlation analysis, and the output is illustrated in the below Table 6. Therefore, it is evident that a strong positive correlation exists between customer satisfaction and reliability, responsiveness, assurance, tangibility and empathy, which are significant at 1% level.

**Table 6: Correlation Analysis**

		REL	RES	AS	TA	EM	CS
REL	Pearson Correlation	1					
RES	Pearson Correlation	.830**	1				
	Sig. (2-tailed)	.000					
AS	Pearson Correlation	.842**	.883**	1			
	Sig. (2-tailed)	.000	.000				
TA	Pearson Correlation	.837**	.870**	.853**	1		
	Sig. (2-tailed)	.000	.000	.000			
EM	Pearson Correlation	.816**	.854**	.856**	.887**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
CS	Pearson Correlation	.815**	.818**	.815**	.821**	.771**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

(Source: SPSS Output)

## Regression Analysis

To achieve the first two objectives of the study, multiple regression analysis was used to investigate the impact of e-banking service quality dimensions (reliability, responsiveness, assurance, tangibility and empathy) on customer satisfaction. Accordingly, three multiple regression models were developed by the authors.

The equation of multiple regressions on this study is built around the customer satisfaction, which is the dependent variables and independent variables including the e-banking service quality dimensions of reliability, responsiveness, assurance, tangibility and empathy. Therefore, the regression model of the study can be illustrated as follows.

$$CS = \beta_1 + \beta_2REL + \beta_3 RES + \beta_4AS + \beta_5TA + \beta_6EM$$

## Multiple Regression – First Analysis

As per the below Table 7, 75.3% of the variation in customer satisfaction can be predicted from the five dimensions of service quality (independence variables): Reliability, Responsiveness, Assurance, Tangible

and Empathy. Furthermore, as per the ANOVA output shown in Table 8 below, the F statistic is significant at 1% level, indicating the significance of the model in predicting the customer satisfaction using the predictor variables.

**Table 7: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.868 <sup>a</sup>	.753	.749	.33341	1.736
a. Predictors: (Constant), EMP, REL, RES, AS, TAN					
b. Dependent Variable: CS					

(Source: SPSS Output)

**Table 8: ANOVA**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	99.539	5	19.908	179.089	.000 <sup>b</sup>
	Residual	32.682	294	.111		
	Total	132.221	299			

(Source: SPSS Output)

Table 8 below shows the coefficients of the regression analysis model of the study can be indicated as below.

$$CS = 0.483 + 0.275REL + 0.226RES + 0.199AS + 0.284TA - 0.076EM$$

As per Table 9, it is evident that reliability, responsiveness, assurance and tangibility are having positive coefficients which are significant under 1% level, therefore has a positive and statistically significant impact on customer satisfaction. This lead to the acceptance of H1, H2, H3, H4. However, empathy on the other hand has a negative coefficient which is insignificant, showing its insignificant impact on customer satisfaction. Therefore, the authors rejected H5.

**Table 9: Coefficient of Multiple Regression Analysis**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.483	.124		3.888	.000
	REL	.275	.059	.285	4.699	.000
	RES	.226	.075	.216	2.992	.003
	AS	.199	.069	.207	2.879	.004
	TAN	.284	.074	.287	3.853	.000
	EMP	-.076	.069	-.078	-1.102	.271

(Source: SPSS Output)

## Multiple Regression - Second Analysis

The second objective of the study is to identify the impact of e-banking service quality on customer satisfaction on both private and public banks. Therefore, the second multiple regression model attempts to identify the impact of Reliability, Responsiveness, Assurance, Tangible and Empathy on customer satisfaction in public banks in the Rathnapura District. As per Table 10, 72.5% of the variation in customer satisfaction of public banks in Rathnapura District can be predicted from the five dimensions of Reliability, Responsiveness, Assurance, Tangible and Empathy. Furthermore, the F statistic as shown in Table 11 is significant at 1% level, indicating the significance of the model in predicting customer satisfaction of public banks using the predictor variables.

**Table 10: Model Summary – Public Banks**

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	.851 <sup>a</sup>	.725	.715		.30727	1.887
a. Predictors: (Constant), PUB_EMP, PUB_REL, PUB_RES, PUB_AS, PUB_TAN						
b. Dependent Variable: CS						

(Source: SPSS Output)

**Table 11: ANOVA – Public Banks**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	35.824	5	7.165	75.889	.000 <sup>b</sup>
	Residual	13.596	144	.094		
	Total	49.420	149			

(Source: SPSS Output)

According to Table 12, assurance and tangibility have positive coefficients which are significant under 1% level, therefore has a positive and statistically significant impact on customer satisfaction in public banks. This lead to the acceptance of H8 and H9. However, reliability, responsiveness have positive, yet insignificant impact on customer satisfaction in public banks. Empathy on the other hand has a negative coefficient which is insignificant, showing its insignificant impact on customer satisfaction. Therefore, the authors rejected H6, H7 and H10.

**Table 12: Coefficient of Multiple Regression Analysis – Public Banks**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.735	.179		4.098	.000
	PUB_REL	.103	.076	.112	1.349	.179
	PUB_RES	.117	.102	.117	1.145	.254
	PUB_AS	.261	.085	.284	3.052	.003
	PUB_TA	.411	.108	.425	3.799	.000
	PUB_EM	-.033	.095	-.034	-.348	.728

(Source: SPSS Output)

**Multiple Regression – Third Analysis**

To fulfill the second objective, the third multiple regression model attempts to identify the impact of Reliability, Responsiveness, Assurance, Tangible and Empathy on customer satisfaction in private banks in the Rathnapura District. Table 13 shows 83.9% of the variation in customer satisfaction of private banks in Rathnapura District can be predicted from the five dimensions of Reliability, Responsiveness, Assurance, Tangible and Empathy. Furthermore, Table 14 is the significant at 1% level of the F statistic shows the significance of the model, in predicting the customer satisfaction of private banks using the predictor variables.

**Table 13: Model Summary – Private Banks**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.916 <sup>a</sup>	.839	.834	.30794	1.914
a. Predictors: (Constant), PRI_EMP, PRI_REL, PRI_RES, PRI_AS, PRI_TAN					
b. Dependent Variable: CS					

(Source: SPSS Output)

**Table 14: ANOVA – Private Banks**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	71.320	5	14.264	150.427	.000 <sup>b</sup>
	Residual	13.655	144	.095		
	Total	84.975	149			

(Source: SPSS Output)

According to Table 15, reliability, responsiveness and tangibility are having positive coefficients which are statistically significant, therefore has a positive and statistically significant impact on customer satisfaction in private banks. Hence, the researchers accepted H11, H12 and H14. However, assurance and empathy have

positive, yet insignificant impact on customer satisfaction in private banks. Therefore, the authors rejected H13 and H15.

**Table 15: Coefficient of Multiple Regression Analysis – Private Banks**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.270	.148		1.823	.070
	PRI_REL	.339	.072	.373	4.703	.000
	PRI_RES	.206	.097	.192	2.130	.035
	PRI_AS	.150	.099	.147	1.526	.129
	PRI_TA	.174	.088	.182	1.983	.049
	PRI_EM	.069	.093	.068	.737	.462

(Source: SPSS Output)

### Kruskal-Wallis Chi Square Tests

Kruskal Wallis Chi Square test was used to test whether overall customer satisfaction in e-banking services in the Rathnapura District differ based on the demographic characteristics, to fulfil the third objective of this study. According to the below Table 16, it was revealed that customer satisfaction in e-banking differs based on the demographic factors of Age gender, and education as the chi-square values are significant under 5% level while income is insignificant. Therefore, H16 of the study is rejected as overall customer satisfaction in e-banking services in the Rathnapura District differ based on the demographic characteristics.

**Table 16: Kruskal-Wallis Chi Square Tests ANOVA**

		Sum of Squares	df	Mean Square	F	Sig.
age	Between Groups	47.369	25	1.895	1.206	.233
	Within Groups	430.617	274	1.572		
	Total	477.987	299			
gender	Between Groups	6.221	25	.249	1.005	.460
	Within Groups	67.816	274	.248		
	Total	74.037	299			
education	Between Groups	15.140	25	.606	1.203	.236
	Within Groups	137.980	274	.504		
	Total	153.120	299			
income	Between Groups	42.878	25	1.715	.967	.512
	Within Groups	485.959	274	1.774		
	Total	528.837	299			

(Source: SPSS Output)

## Hypothesis Testing

Below Table 17 provides a summary of the hypotheses tested in this study.

**Table 17: Summary of Hypothesis Testing**

Hypothesis	Decision
H1: There is a significant positive impact of reliability on e-banking customer satisfaction during Covid-19 in Rathnapura District.	Accepted
H2: There is a significant positive impact of responsiveness on e-banking customer satisfaction during Covid-19 in Rathnapura District.	Accepted
H3: There is a significant positive impact of assurance on e-banking customer satisfaction during Covid-19 in Rathnapura District.	Accepted
H4: There is a significant positive impact of Empathy on e-banking customer satisfaction during Covid-19 in Rathnapura District.	Accepted
H5: There is a significant positive impact of Tangible on e-banking customer satisfaction during Covid-19 in Rathnapura District.	Rejected
H6: There is a significant positive impact of reliability on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.	Rejected
H7: There is a significant positive impact of responsiveness on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.	Rejected
H8: There is a significant positive impact of assurance on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.	Accepted
H9: There is a significant positive impact of Empathy on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.	Accepted
H10: There is a significant positive impact of Tangible on e-banking customer satisfaction in public banks during Covid-19 in Rathnapura District.	Rejected
H11: There is a significant positive impact of reliability on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.	Accepted
H12: There is a significant positive impact of responsiveness on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.	Accepted
H13: There is a significant positive impact of assurance on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.	Rejected
H14: There is a significant positive impact of Empathy on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.	Accepted
H15: There is a significant positive impact of Tangible on e-banking customer satisfaction in private banks during Covid-19 in Rathnapura District.	Rejected
H16: Overall customer satisfaction in e-banking service quality differ based on demographic characteristics	Rejected

(Source: Survey Data)

## 5. Conclusion

This study was designed to answer the research question “what is the impact of e-banking service quality on customer satisfaction during Covid-19 in commercial banks in Rathnapura District?”. Subsequently, three objectives and sixteen hypotheses were developed by the authors. To achieve the first two objectives of the study, multiple regression analysis was carried out by the authors. According to the first multiple regression analysis, it was revealed that reliability, responsiveness, assurance and tangibility are having positive coefficients which are statistically significant under 1%, and subsequently accepted H1, H2, H3, H4. Empathy



had a negative statistically insignificance, hence rejected H5. Accordingly, the authors achieved the first objective of the study.

These findings are consistent with the findings of Toor et al. (2016) where they found reliability, responsiveness and assurance to have a positive significant impact on customer satisfaction. However, according to their findings, both tangibility and empathy had an insignificant impact. Further, our findings were similar to those of Ejigu (2016), however, as per his findings, assurance dimension was found to be insignificant upon customer satisfaction. Moreover, Alarifi and Husain (2021) revealed that responsiveness negatively impacted e-customer satisfaction in Saudi banks during Covid-19, which follows an inconsistency with our study's findings.

Further, when compared with the local literature, Perera and Gunaratna (2020) found that all five dimensions have a significant positive impact on customer satisfaction, which contradicts with our empathy dimension which was insignificant. Similarly, Priyankara and Weligamage (2021) also found empathy dimension insignificant upon customer satisfaction, opposing to our findings.

The second multiple regression analysis attempted to identify the impact of e-banking service quality on customer satisfaction of public sector banks in Rathnapura District during Covid-19. The analysis output suggested a statistically significant positive impact of assurance and tangibility on customer satisfaction in public banks and accepted H8 and H9. Further, reliability and responsiveness were found to be having a positive, but statistically insignificant impact on customer satisfaction. Empathy on the other hand had a negative, statistically insignificant impact. Therefore, the authors rejected H6, H7 and H10.

According to the third multiple regression, the researchers aimed at identify the impact of e-banking service quality on customer satisfaction of private sector banks in Rathnapura District during Covid-19. As per the regression output, there was a positive, statistically significant impact of reliability, responsiveness and tangibility on customer satisfaction in private banks and subsequently accepted H11, H12 and H14. On the other hand, assurance and empathy had positive insignificant impact on customer satisfaction in private banks. Therefore, the authors rejected H13 and H15. The second objective of the study was achieved according to second and third regression analysis.

Based on the Kruskal Wallis Chi Square test conducted, it was revealed the customer satisfaction in e-banking differs based on only demographic factors of age, gender and education. So H16 is not acceptance. Hence, the researcher didn't achieve the third objective.

## Limitations of the Study

This study encompasses several limitations. The researchers experienced lack of cooperation and motivation towards completing the questionnaire. Furthermore, obtaining the approval from the four banks to collect data from customers was challenging.

## Recommendations

In terms of the customer's expectations, it was found that expectations of customers in private banks are higher than that of public sector banks. Therefore, it is recommended to private banks to improve the tangibility and reliability to get a competitive edge over the public banks and thereby to retain the customers and to attract the new customers in the e-banking arena.

**Reliability-** According to Singh and Kaur (2013) the banks are known for their reliability and consistency in performing the banking tasks, however, it is important to portray this dependability through web-based services as well. Bankers should focus on maintaining customer satisfaction. Looking at the operations of the e-banking in state owned banks reliability is one aspect that brings up a lot of outcry from the customers. In some cases the e-banking are usually offline due to unreliable communications which results in long queues. At times the e-banking run out of cash especially during the month ends when a lot of civil servants customers want to access their accounts slow response by service providers in repairing faulty e-banking also results in unreliable service.

**Responsiveness-** Suleman et al. (2012) conducted a research while considering responsiveness as a significant determinant of digital banking quality to find its impact over user loyalty and satisfaction. According to Hammoud et al. (2018) responsiveness can be categorized into four steps. First, Internet banking system can regulate and function the service appropriately; second, Internet banking network can properly guide customers towards proceeding if any failure occurs; third, it can provide a quick way out to handle any error in Internet banking transactions; and as the fourth finally giving quick response any clients' query.

**Assurance-** The bank should communicate with customers in a proper way. The service provider should have staff who are knowledgeable on the operations of the e-banking so as to convey confidence in the customer even when things are bad in case of the e-banking having a major technical fault, which could take days to correct, the bank should be able to convey the message to customers in a manner that will generate confidence (Ejigu, 2016).

**Tangibility-** This includes about providing customer care with individualistic approach. According to Al-ET Parasuraman in 1991 empathy is the level and amount of customers are worrying of them and taking care about them. Banks should care about their customers and provide necessary facilities for them. Then it

should help to increase customer attraction as well as customer satisfaction. When using e-banking facilities most of employees consider about its service quality. In their empathy is a considerable factor.

Empathy- Increasing contribution towards CSR activities both in public and private sector banks. The surroundings should be maintained clean by way of banks providing waste bins for litter generated from receipts. The personnel that provide guidance to the customers should also look presentable (Ejigu, 2016).

### Suggestions for Future Research

As this study was conducted to identify the impact of e-banking customer satisfaction during Covid-19, the authors suggest future research to be conducted on the same topic, for the post-pandemic time period, for the entire country. Further, future research can also be conducted to examine how the e-banking service quality of individual banks impact customer satisfaction and extend the analysis as a comparative study among competitor banks. Moreover, since this study followed the survey strategy, the authors suggest future research to be conducted through interview, to obtain an in-depth understanding of e-banking customers' satisfaction towards e-banking services offered by commercial banks.

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