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## Appraisal of the Constraint of Adoption for E-Banking System in Pakistan

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**Abstract:** Based on the notion of e-Readiness, this research aims to provide a detailed and original explanation of the factors that may affect the adoption of E-Banking, which is the relatively latest variant of conventional banking in Pakistan. This research is designed to evaluate the opportunities and constraints of the E-Banking system and to find the socio-economic determinant of adoption to propose the policy implications to increase the efficiency of the online banking system in Pakistan. The primary data were collected with the help of a well-structured questionnaire and a well-designed survey. A sample of 600 respondents was selected by stratified simple random sampling technique. Collected data was organized and analyzed. The results indicated that family sizes, age of the respondent, education of the respondent, and income of the households were observed as the important socio-economic characteristics of e-banking adoption. The constraints relating to socio-economic, financial, demographic, and technological factors are highly ranked by respondents. Variables related to financial and institutional factors are ranked low as banking is an efficient sector in Pakistan, and a competitive environment ensures the efficacy of the banking system. Results of the probit model showed that Age of Customer education, personal income, working hours, gender, remittances, credit card user, and distance from bank branch.

**Key Words:** E-banking, Adoption Analysis, Constraint's Analysis, Determinants of E-banking Adoption, Pakistan

### Background

Internet Growth and popularity created great opportunity and potential for various sectors of the economy and posed intimidation towards private companies to cope with the pace of technological advancements. The services sector is the most important sector with reference to growth in the first century. The growth of the services sector depends on customer satisfaction, needs, comfort, and affordability. Research and development in information technology accelerate the global services sector development (Hassan *et al.*, 2018; Tukker, 2015). The financial sector also relishes high tech through improvement in customer satisfaction and time-efficient operations (Lisch, 2016). The financial sector utilizes all the available options quickly to sustain itself in a globally competitive environment (Campiglio, 2016; Porter and Kramer, 2019).

Banking and financial sectors are the cores of economic growth by providing investment, services, and capital to global economies (Ravenhill, 2017; Swift, 2001; Dapp, 2017). Determined by these challenges, financial institutions and banks have been executed by distributing their facilities using this network (Parise *et al.*, 2016). Internet banking provides traditional and new facilities to its customers at a low-cost structure of banking that comprises traditional products and services like payment of bills, statements of accounts, balance inquiry, and fund transfer. The new banking services include branchless banking,

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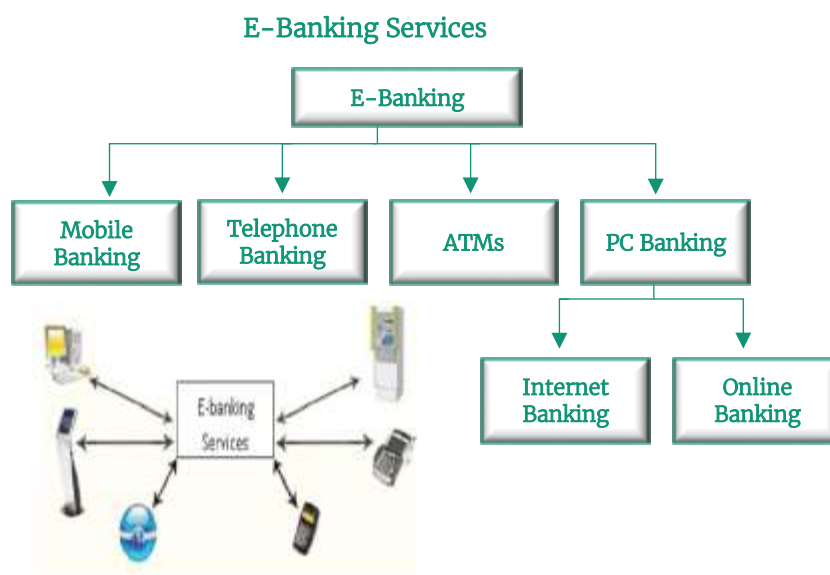
customer care, mobile banking and support, electronic billing, and credit systems (Frust, Lang, & Nolle, 2000).

The main purpose of online banking and branchless banking is to reduce the transaction cost of banking and increase the banking share in competitive financial markets. E-banking reduces the operational cost of commercial banks substantially and also improves the performance of the services of banks. Online bank services are available all the time of day with better quality and location-free. E-banking also provides customers with personalized services to improve the service structure (Hassan *et al.*, 2018). The framework is not only convenient to banks, but it also facilitates customers to better manage their financial needs 24 hours a day and throughout the year without taking care of location with safety (Rotchanakitumunai & Speece, 2003).

Although E-banking adoption is increasing in almost all developing countries and strengthening their economies, the financial transaction carried out on the Internet is low. Consequently, the concern is about the adoption of services, especially in developing countries of Asia and Africa. Developed nations have improved, consistent, and smooth banking systems for a long and there is no problem of security, theft, bad support, and inconsistency. Developing nations have a weak financial system that is not well equipped with the latest technology, and likewise, the customers are also not ready to adopt e-banking due to low levels of skills and expertise. Precious studies showed inconsistency in the adoption of e-banking, and customers either did not start or leave after some time due to system inefficiencies. The bank customers that use e-banking are just a share of customers who can avail of this service, while the actual number of users is quite low (Mearian, 2001; Anus *et al.*, 2011). Likewise, electronic banking is increasing at a slower pace in lower-income groups due to a lack of resource ownership and low skill/expertise in high tech (Mazhar *et al.*, 2014; Khan and Khan, 2012; Bradley & Stewart, 2002).

Past studies exhibit that banking customers in developing nations ranked Internet banking as less important than Internet banking, creating the problem of identification of a gap (Omar *et al.*, 2011). The adoption of Internet banking is low due to customer end or low technology and integration among different sectors of the economy (Rahi, 2015). The current banking system of Pakistan is -in the stage of transformation from a conventional to a modern banking system due to the information technology revolution (Hassan *et al.*, 2018). Online banking is relatively more profitable than conventional banking; conversely, socio-economic (religion, trust, price, culture, education, secrecy), cultural, and regional factors prohibit customers from adopting e-banking (Pilbeam, 2018). There is a need to find the reasons for the low adoption of E-banking in Pakistan to formulate a better policy.

**Figure 1**  
Electronic banking services



(Source: Liao *et al.*, 1999)



Electronic banking is evolving over time, and the pace is satisfactory in Pakistan, considering the use of Internet banking is the third number after real-time online banking. Internet banking has evolved - at a good pace in the last couple of years and created its demand consistently as compared to conventional banking, although it has not efficiently increased (Shaikh *et al.*, 2016). The banking sector is efficient to some extent in terms of service providers; conversely, customers are not adopting due to technical, personal, behavioral, and socio-economic factors. In Pakistan, real-time online banking (RTOB) is at the first number, automated teller machines (ATM) at the second number, and internet banking at the third number in terms of frequency of use (Westland and Clark, 2001; (Toor *et al.*, 2016). Branchless banking is a new trend, and there are certain banks that provide these services at low costs, like online billing, debit/credit payments, money transfers, e-loans, mobile banking, and many other services (Mutunga, 2013; Mughal *et al.*, 2012; Aslam *et al.*, 2011).

The availability of ICT and quick accessibility of trustworthy Internet expanded electronic banking at a fast scale (Eggers and Macmillan, 2013; Zahid *et al.*, 2012; Dar, 2012). Consequently, it needs time to identify the challenges and shortcomings of customers and bank ends to make the system more efficient and adaptable (Hussain *et al.*, 2017; Faizan and Yuan, 2013; Ilyas *et al.*, 2013).

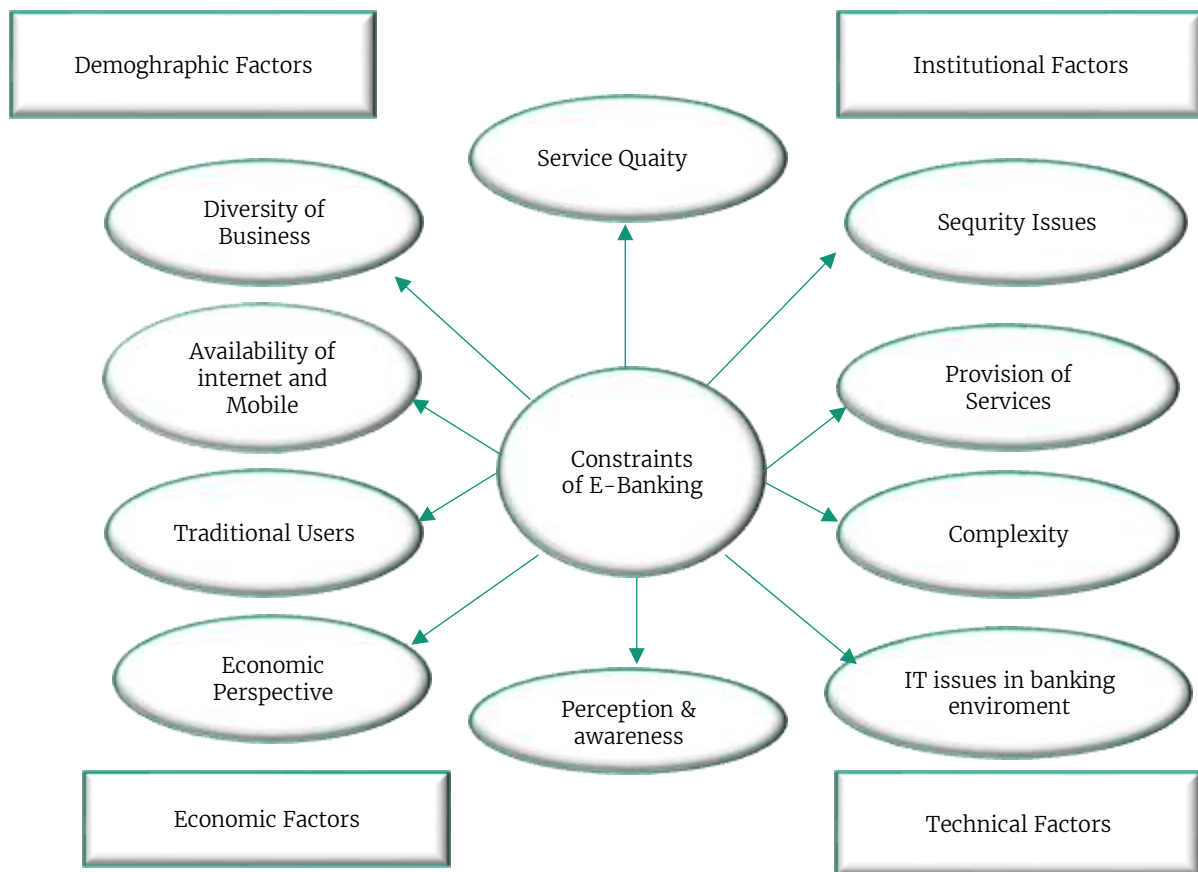
Banking services include Internet banking in two ways. One of the existing banking networks that are efficient and have wide networking in the banking sector enters into Internet banking and offers improved services along with all traditional services (Kazi and Mannan, 2013; Afshan *et al.*, 2018; Zhang *et al.*, 2018). Those systems work more efficiently and have reach in different areas far from bank sites at lower cost and less staff. The digital world enabled the banking system to enable the masses to operate their personal and business needs with security, trust, reliability, and secrecy (Oladejo and Akanbi, 2012; Hussain *et al.*, 2017). The time factor is the most important determinant in the twenty-first century, and it needs time to inter-link domestic and business payment scheduled through the Internet and mobile banking systems (Abubakar, 2014; Najaf, 2014; Sumra *et al.*, 2011; Kaleem and Ahmad, 2009).

The Pakistan banking sector is an efficient central core of economic and financial systems under the umbrella of the central banking system like the State Bank of Pakistan and the finance ministry. The financial matters must be looked after through a centrally controlled authority that designs, establishes, and monitors the system and its efficacy (Abid and Noreen, 2006; Suh and Han, 2003). Digital certificate accessibility and security problems area unit delaying and decision-making by banks (Al-Shbiel and Ahmad, 2016; Gerrard and Cunningham, 2003; Suganthi, 2001). Utility bills are units being accepted at ATMs, Internet, PC banking, lock boxes, and decision centers. Utility bills area unit operating closely with answer suppliers and banks to encourage customers to pay utility bills on time (Chandio, 2011; Akhlaq and Ahmed, 2013; Suh & Han, 2003; Khan, 2007; Saleem and Rashid, 2011). Following the worldwide trend to implement self-service technology via the web, net banking in Pakistan can become a longtime service that growth is anticipated. Quite this, Pakistan's net is the quickest-growing market in South Asia. The amount of net banking users in Pakistan has doubled per annum within the last two years. The employment of net banking in Pakistan has been shown to extend tremendously (Shabbir *et al.*, 2010). The speedy development of the web additionally encompasses a high demand for well-developing Pakistani net banking (Mohsin Butt and Aftab, 2013; Khurshid *et al.*, 2014; Oye *et al.*, 2011; Abbas *et al.*, 2018).

The main Theoretical research questions are: What are the Constraints of E-banking System adoption and the Technical, Institutional, and Socio-economic barriers to truncated adoption of E-Banking in Pakistan? The research objective of this study was designed to address the problem statement and resource and time availability. The main research objectives were to identify the opportunities and constraints of the E-Banking system in the study area and to find the socio-economic determinant of the adoption of E-Banking in the study area. The results are presented in a way to propose the policy implications that increase the efficiency of the online banking system in Pakistan.

**Figure 2**

Constraint analysis for electronic banking



## Methodology

Materials and methods offer a pathway for the researcher to complete the collection process of analysis and interpretation of data (Schallehn et al., 2019; Nachmias, 1992).

The research method was then adopted, keeping in mind the purpose of the study. Data analysis techniques were used to analyze the data collected in the statistical software STATA version 13.

## Study Area

The research was done in the district of Faisalabad, a metropolitan metropolis and the third-largest city of Punjab by population. The primary data were collected with a well-structured comprehensive questionnaire. The sample of 600 respondents was selected by the stratified random sampling technique. The two union councils of the district were randomly selected, and bank customers were randomly selected from these union councils. The sample was selected at user and non-user locations of online banking services.

## Data Collection

The primary data were collected with the help of a well-structured questionnaire and a well-designed survey. A sample of 600 respondents was selected by stratified simple random sampling technique. Collected data, organized, and analyzed.

Principal component analysis was used to identify the constraints of electronic banking, and the probate model was used to determine the adoption of electronic banking.

## Principal Component Analysis

The constraint analysis was done to identify the consumer challenges in the adoption of electronic banking, the Likert scale was developed, and various multidimensional constraints were arranged to identify the



most important factors among all these. PCA was used to identify this constraint and arrange them according to respondents' scale and rank. It is a known method for data reduction as there were more than 30 or 40 constraints according to observation and previous literature, so PCA expresses this multivariate data into less dimensional data with the rank of these datasets. First, it analyses and ranks, and after that, the less important factors are excluded from the analysis.

The goal- of PCA is to find components  $z = [z_1, z_2, \dots, z_p]$ , which are a linear combination  $u = [u_1, u_2, \dots, u_p]$  of the original variables  $x = [x_1, x_2, \dots, x_p]$  that achieve maximum variance. The first component,  $z_1$ , is given by the linear combination of the original variables  $x$  and accounts for the maximum possible variance. The second component captures most information not captured by the first component and is also uncorrelated with the first component.

The Kaiser's rule recommends retaining only factors with eigenvalues  $\lambda$  exceeding unity. Intuitively, this rule means that any retained factor  $z$  should account for at least as much variation as any of the original variables  $x$ .

In practice, the scree plot of the eigenvalues is examined to determine whether there is a "break" in the plot, with the remaining factors explaining considerably less variation. Principal components analysis is undertaken in cases when there is a sufficient correlation among the original variables to warrant the factor/component representation.

### Determinants of Electronic Banking Adoption

The adoption of technology depends upon multidimensional factors like socio-economic, behavioral, and personal factors of choice and resource ownership. To find the determinant, regression analysis was utilized, and logit regression was used to analyze the data of adopters and non-adopters. The adoption of electronic banking was regressed on technical, institutional, and socio-economic factors.

$Y_i$  = User of Electronic Banking services (User and non-user of E-banking)

$X_i$  = Socio-economic and other important variables based on existing literature

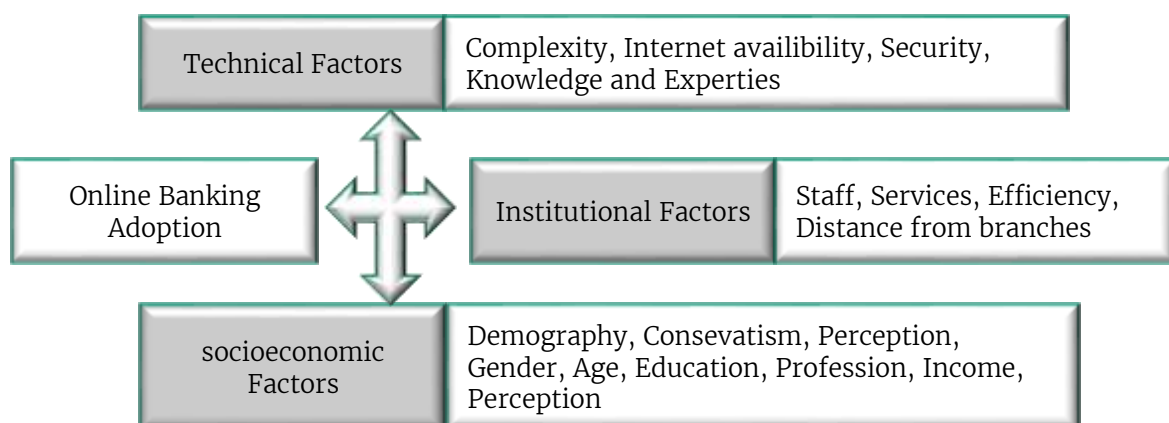
$Y_i = f(X_i)$

Literature on electronic banking adoption identifies many variables that either support or hinder the adoption of technology and electronic banking. After constraint identification, the next step is used to identify the determinants of the adoption of electronic banking. So electronic banking is confronted with various challenges like Information technology, Communication constraints/factors, and socio-economic, demographic, and institutional factors.

- I. Socio-economic Variable comprises age, education, family size, income, saving debit, credit, etc.
  - II. Information Technology Variable. Comprises computer, mobile, and Internet availability and skill of use
  - III. Institutional Variable contains services Efficiencies. Trained staff, etc.
- The E-banking model is depicted in the figure:

**Figure 3**

*Determinants of E-Banking Adoption*



To measure the determinants, a logistic regression model was used. We take the use of electronic banking as the dependent variable. A binary logistic model was best to measure the impact of socio-economic factors. A household was a user with a value of 1 or A user with the value 0.

$$\text{Log} \left( \frac{P_i}{1 - P_i} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n$$

In the equation  $X_1, X_2, X_3, \dots, X_n$  They represent the explanatory variables (socio-economic factor), and  $\beta$ etas are the coefficients of these socio-economic factors. The use of electronic banking is the dependent variable and socio-economic factors that are taken into account in this study.

## Results and Discussion

The banking sector in the twenty-first century is important in terms of supporting and strengthening economic and financial integrity. Technological advancements are important in terms of the global pace of development; however, these are posing serious challenges in shaping world resource equity and opening up new horizons of economic development. The integration of technology, institutions, and economic development improved the services sector as a whole and increased the flexible payment methods user-friendly, secure, and long-lasting banking services.

Socio-economic indicators are the most important factors that determine the structure of the sample. The analysis and results of demographic, personal, and behavioral factors were analyzed in this section. The data of 200 respondents were utilized after the removal of outliers, and among 200 respondents, 100 respondents were users of electronic banking services, while 100 respondents were non-users of electronic banking services.

In Table 1, the descriptive statistics of respondents are presented. The average use of banking service years is 17 years, ranging between 1 to 35 years, with a standard deviation of 11 percent. Distance from the bank branch was the actual distance in kilometers from residence to the bank in which the consumer owns a bank account. The average distance from the bank branch was 3.81 kilometers, ranging between half a kilometer to 12 kilometers.

**Table 1**

*Descriptive statistics of socio-economic indicators of respondents*

Explanatory Variables	Average	Maximum	Minimum	Standard deviation
Year-to-use banking service	16.475	35	1	11.30746
Distance from bank branch	3.81	12	0.5	2.779393
Expense to visit bank branch (two way)	181.825	600	0	139.3409
Age (Years)	35.715	70	18	10.55989
Education (Years of schooling)	12.585	20	5	3.103374
Monthly Income (Rupees)	47762.5	300000	5000	59911.56
Hours at the workplace (Working Hrs. per day)	6.855	12	2	2.310991
Family Size	5.49	10	2	1.867441
Gender Male=1/ Female=0	0.775	1	0	0.41863

## Principal Component Analysis

Principal component analysis was utilized to scale the important constraints that really hinder the adoption of electronic banking. The main elements were enlisted in Table 2.

**Table 2**

*Mean ranking of Constraints of Electronic banking in the study area*

Variable name	Mean	Standard Deviation
A high fee for E-banking services	2.96	1.21
Hidden charges	3.25	1.07
Service Quality	2.79	1.09
Security issue	2.92	1.18



Complexity	3.29	1.16
IT issues	3.40	1.01
Low reliability-	2.78	1.08
Insufficient	3.16	1.12
ATM is not working mostly	2.99	1.19
Poor quality website	3.26	1.13
Speed	3.10	1.16
Trust	2.75	1.08
Clarity	3.23	1.11
Expertise	3.35	1.12
Lack of marketing	2.62	1.05
Personal Preferences	2.24	1.12
Late Adopter of technology	2.70	1.18
Unavailability of mobile, internet, and computer	2.58	1.16
Low Understanding	3.01	1.17
Required features	2.89	1.14

The collected data of 200 respondents were employed for constraint analysis. Table 3 depicts the mean ranking of constraints that hinder the growth of electronic banking adoption. It shows that constraints relating to socio-economic, financial, demographic, and technological factors are highly ranked by respondents. Variables related to financial and institutional factors are ranked low as banking is an efficient sector in Pakistan, and a competitive environment ensures the efficacy of the banking system.

**Table 3**

*Total variance explained by PCA for electronic banking*

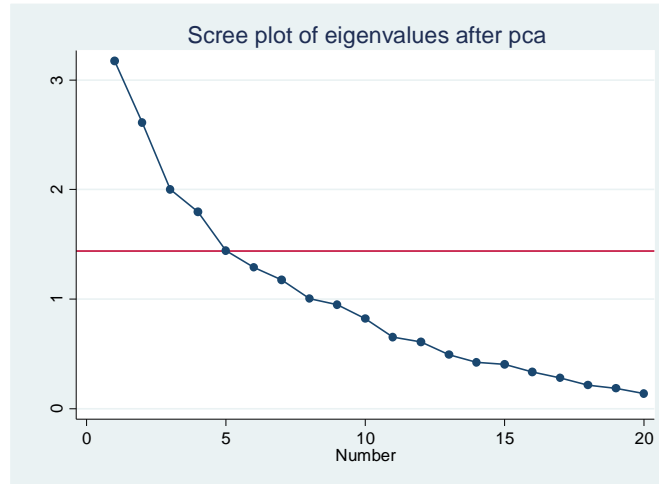
Component	Eigenvalue	Difference	Proportion	Cumulative
1.	3.17	0.56	0.15	0.15
2.	2.61	0.61	0.13	0.28
3.	1.99	0.20	0.10	0.38
4.	1.79	0.35	0.08	0.47
5.	1.44	0.15	0.07	0.55
6.	1.28	0.11	0.06	0.61
7.	1.17	0.17	0.05	0.67
8.	1.01	0.05	0.05	0.72
9.	0.94	0.12	0.05	0.77
10.	0.82	0.16	0.04	0.81
11.	0.65	0.04	0.04	0.84
12.	0.61	0.11	0.03	0.87
13.	0.49	0.06	0.03	0.90
14.	0.42	0.01	0.02	0.92
15.	0.40	0.06	0.02	0.94
16.	0.33	0.05	0.02	0.95
17.	0.28	0.06	0.01	0.97
18.	0.21	0.02	0.01	0.98
19.	0.18	0.04	0.01	0.99
20.	0.13		0.00	1

The objective of PCA is to identify the key combinations of factors and constraints that are ranked according to their importance. Table 4 shows the eigenvalues of constraints and components. There are eight components that are larger than one and describe 72 percent of the total variation.

It is worth mentioning that only factors that have eigenvalues greater than one are retained. The plot of eigenvalues shows that only five factors are above the 1.9 eigenvalues (benchmark) and considered in the analysis.

**Figure 4**

Scree plot of eigenvalues after PCA



The first component consists of personal factors like the adoption of technology, unavailability of mobile and internet, lack of understanding, lack of need for bank services, and lack of required features in electronic banking, and cumulative is 1.98.

**Table 4**

Rotated Component Matrix

Component	1	2	3	4	5
late adopter of technology	0.46				
Unavailability of Internet and mobile	0.46				
E-banking is difficult to understand	0.37				
E-banking is not useful	0.37				
E-banking has no required features	0.32				
Lack of expertise		0.46			
Slow Internet speed		0.42			
Lack of clarity in E-Banking services		0.39			
Lack of trust		0.32			
E-banking is not Secure.		0.32			
Lack of marketing			0.37		
Complexity of online banking system			0.35		
Service Quality is not good.			0.33		
E-banking is less reliable.			0.33		
IT issues in a banking environment.			0.32		
Poor quality of bank sites				0.49	
Insufficient customer support				0.41	
ATM machines are not working, mostly				0.36	
The E-Banking fee is high.					0.38
Hidden Charges are included if using E-Banking.					0.34

The second component consists of a lack of expertise (0.46), slow internet speed (0.42), Lack of clarity in E-Banking service (0.39), Lack of trust (0.32), and security issues (0.32). The sum of factor loading is 1.91. The third factor includes Lack of marketing (0.37), Complexity of online banking system (0.35), Service Quality not good (0.33), E-Banking being less reliable (0.33), and IT issues in the banking environment (0.32) and the sum of factor loading are 1.91. The fourth component is about institutional factors and includes Poor quality of bank sites (0.49), Insufficient customer support (0.41), and ATM machines not working mostly (0.36). The last component is about financial factors like E-Banking fees, which are high (0.38), and hidden charges included if using E-Banking (0.34). The sum of factor loading is 0.72.





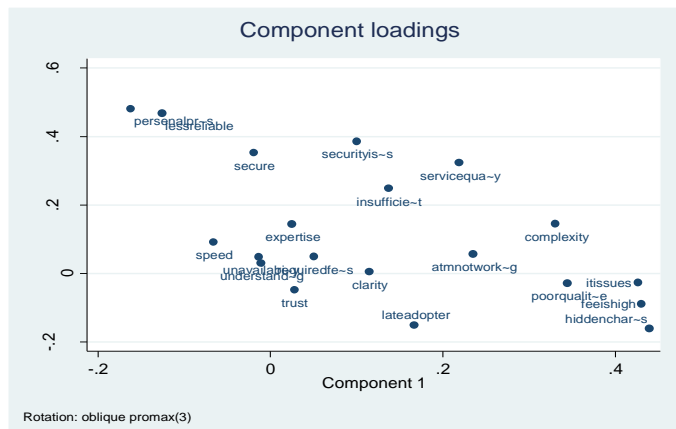
**Table 5**

Sum of factor loading

Labeling	The sum of Factor loading
Personal factors	1.98
Psychological and behavioral factors	1.91
Technical factors	1.69
Institutional factors	1.26
Financial factors	0.72

**Figure 5**

Component Loading



In order to confirm the appropriateness of PCA, a Kaiser–Meyer–Olkin (KMO) was employed in this study. Table 6 shows the value of KMO. The value of KMO is 0.60, indicating that there are enough items for each factor. We have selected a total of 20 relevant variables for our analysis.

**Table 6**

KMO value of PCA

Variable name	KMO
A high fee for E-banking services	0.64
Hidden charges	0.57
Service Quality	0.55
Security issue	0.53
Complexity	0.49
IT issues	0.50
Low reliability	0.50
Insufficient	0.51
ATM is not working mostly	0.50
Poor quality website	0.43
Speed	0.36
Trust	0.40
Clarity	0.44
Expertise	0.50
Security	0.58
Personal Preferences	0.45
Late Adopter of technology	0.40
Unavailability of mobile, internet, and computer	0.50
Understanding of	0.41
Required features	0.59
Overall KMO	0.60

On the basis of the above empirical findings, the most important constraints are personal factors, and the least important are financial factors.

### Determinants of Electronic Banking in Pakistan

The most important factors were analyzed using the probit model in STATA version 13. The important factors were Age, education, personal income, gender, remittances, credit card use, and distance from bank branches (Wai, 2008).

Table 7 describes the important determinants of the adoption of electronic banking in the study area, and the important indicators include socio-economic determinants.

**Table 7**

*Determinants of Electronic Banking*

Dependent variable: Electronic Banking Use (User= 1, Non-user=0)			
Variable	Description	Coefficient	Significance
Age of Customer	Years	-0.034	0.003
Education	Year of schooling	0.126	0.001
Personal Income	Rupees per month	0.023	0.198
Working Hours	Hours per day	0.308	0.000
Gender	Male =1 female=0	0.668	0.018
Remittances	Yes=1 No= 0	0.223	0.389
Credit Card user	Yes=1 No= 0	0.422	0.118
Distance from bank branch	Km from branch	0.04	0.313
Constant		-3.395	0.000

Number of Observations = 200 LR chi-square = 101.05 Probability of chi-square = 0.000 Pseudo R square = 0.365

This is the probability of getting an LR test statistic as extreme as, or more so, than the observed statistic under the null hypothesis; the null hypothesis is that all of the regression coefficients are simultaneously equal to zero. In other words, this is the probability of obtaining this chi-square statistic (101.05) or one more extreme if there is, in fact, no effect of the predictor variables. The small p-value from the LR test, 0.0001, would lead us to conclude that at least one of the regression coefficients in the model is not equal to zero.

### Variable Description

#### Customer Age

The coefficient of age has a negative sign that defines the inverse relationship between customer age and electronic banking, and the coefficient is -0.034 and significant at a 3 percent level of significance. It was found to be an important key indicator in socio-economic factors and linked with the adoption of technology. The adoption of technology is slow in elderly people as compared to their young counterparts. The respondents were asked about their age in years. The expected sign is negative for this variable.

#### Education

The coefficient of education is 0.126, and it showed that an increase in the year of schooling increases the probability of e-banking adoption by 23 percent and is significant at a 1 percent level of significance. Literacy level is an important socio-economic indicator, but it is highly correlated with other indicators like age and income. Educated people could perform better with high-tech and improved services and are usually early adopters of new goods and services. Educated customers could better respond and adopt the improved Electronic banking, so the expected sign is positive, and with higher years of schooling, customers prefer improved banking services.



## Personal Income

The coefficient of personal income is 0.023, and it shows that an increase in income increases the adoption of electronic banking. The users of electronic banking were expected to be the higher income. Generally, banking services are utilized by a higher or middle-income segment of society. The expected sign was positive, and higher income customers will use electronic banking.

## Gender

The coefficient of gender is 0.668 and shows that male customers are early adopters of new services and better access to resources like mobile, internet, and computer. The expected sign of this indicator is positive, and probably, male users are more than their female counterparts. It is significant at a 1 percent level of significance.

## Remittances

The coefficient of gender is 0.223, and it is not significant. The customers who send and receive payments abroad are more concerned with electronic banking. The expected sign of this variable is also positive.

## Credit Card

The coefficient of gender is 0.442 and significant at a 10 percent level of significance. Credit card users are more willing towards electronic banking and its safety issues. Credit card users are early adopters and more concerned about online shopping, e-payments, and e-banking.

## Distance from Bank Branch

The coefficient of gender is 0.04 and not significant. This is an important location variable regarding electronic banking adoption as the customers that own a bank account in the vicinity are not concerned about electronic banking, and they will opt for branch banking, but the customers with bank branches at distant places would be more concerned with branchless banking.

Internet Growth and popularity created great opportunity and potential for various sectors of the economy and posed intimidation towards private companies to cope with the pace of technological advancements. The services sector is the most important sector with reference to growth in the first century. The growth of the services sector depends on customer satisfaction, needs, comfort, and affordability. Research and development in information technology accelerate the global services sector development. The financial sector also relishes the high technology improvement in customer satisfaction and time-efficient operations. The financial sector utilizes all the available options quickly to sustain itself in a global competitive environment.

## Conclusion

The services sector is the most important sector with reference to growth in the first century. The growth of the services sector depends on customer satisfaction, needs, comfort, and affordability. There is huge potential in the banking and financial sector to serve the masses better and sustain the development process. Banking and financial sectors are the cores of economic growth by providing investment, services, and capital to global economies.

The current banking system of Pakistan is in the stage of transformation from a conventional to a modern banking system due to the information technology revolution. Online banking is relatively more profitable than conventional banking; conversely, socio-economic (religion, trust, price, culture, education, secrecy), cultural, and regional factors prohibit customers from adopting e-banking. There is a need to find the reasons for the low adoption of E-banking in Pakistan to formulate a better policy.

The results indicated that family sizes, age of the respondent, education of the respondent, and income of the households were observed as the important socio-economic characteristics of e-banking adoption. The constraints relating to socio-economic, financial, demographic, and technological factors are highly

ranked by respondents. Variables related to financial and institutional factors are ranked low as banking is an efficient sector in Pakistan, and a competitive environment ensures the efficacy of the banking system.

The results of the probit model showed the Age of Customer education, personal income, working hours, gender, remittances, credit card user, and distance from bank branch. The adoption of technology is slow in elderly people as compared to their young counterparts. The respondents were asked about their age in years. Educated people could perform better with high-tech and improved services and are usually early adopters of new goods and services.

The users of electronic banking were expected to be the higher income. Generally, banking services are utilized by a higher or middle-income segment of society. Male customers are early adopters of new services and better access to resources like mobile, internet, and computers. The customers who send and receive payments abroad are more concerned with electronic banking. The expected sign of this variable is also positive. Credit card users are early adopters and more concerned about online shopping, e-payments, and e-banking. The customers who own a bank account in the vicinity are not concerned with electronic banking, and they will opt for branch banking, but the customers with bank branches in distant places would be more concerned with branchless banking.

### Policy Recommendation

This research was focused mainly on the customer's low adoption of electronic banking. The important results stated that electronic banking is low mainly due to psychological and personal factors and not financial factors. The main recommendations based on research findings are as follows. The findings of this study have important practical implications for banks and financial organizations offering Internet banking. In particular, perceived usefulness may be important in the acceptance of technology when compared with the ease of use.

Apart from promoting Internet banking services, banks need to invest in increasing resources to maintain and improve such services. In this process, banks should allocate sufficient resources for the education and training of employees so that employees can explain and encourage non-users of Internet banking services. In addition, banks need to equip themselves with more powerful and advanced computer technology with minimal downtime to support any increase in banking transactions over the Internet.

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