The Technology of Mobile Banking and Its Impact on the Financial Growth during the Covid-19 Pandemic in the Gulf Region

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Abstract: *The purpose of this study is to recognize the important factors that influence the adoption of M-banking in gulf region by its users. IT is quantitative research-based the Unified Theory of Acceptance and the Use of Technology that is also known as UTAUT model. With the help of Partial Least-Squares Structure Equation Modeling, the conceptual framework has been tested and designed. The correlation and multiple linear regression analysis have been functioned to obtained results. In gulf region, the adoption of the customers has decreased because of some factors that have been identified in this paper. These factors also decrease the social influence, financial growth and facilitating conditions. The main contribution of this study is to provide a deep understanding of the factors that help to promote the use of mobile banking in some developing countries. Finally, the research recommends several determinants to use the M-banking in the gulf region setting.*

Keywords:UTAUT, M- Banking, Financial Growth, Effort Expectancy, and Performance Expectancy.

1Introduction

In most developing countries, mobile technology has minimized the communications costs if we compare mobile phone technology with virtually trivial. However, the infrastructure of physical transportation and fixed-line communication in some developing countries, are not reliable and adequate, while in the world standards, the calling rates of mobile phones are still high. Mobile technology permitted many developed countries, such as the US to make 21th century connectivity.At the beginning of this revolution, the users of mobile phones come to know that they can make transactions all over the world. Users were allowed by the mobile phone companies to buy the "air-time" and transfer the credit to their desired people. Toward the recipient users, it was the first step of mobile phones to sell out the received air-time to its local broker with the intention of getting some cash or get the goods and services. Similarly, it has affectedthe buying power of its users from sender to receiver. Since 2005, mobile money (m-money) has emerged in developing economies which have witnessed the emergence of a set of applications that provide different types of financial transactions with the help of mobile phones. The transformation of airtime, making the transactions of money among the people, and paying bills were included in its functions.In this context, the process of transferring cash from one individual to another via phone activation is honored with the help of money transactions through financial and business institutions (Al-Saedi, Al-Emran, Ramayah&Abusham, 2020).

Literature review

In order to examine the trend ofM-banking in the emerging countries and its importance at macro and micro levels in contexts of business environments, this analysis gives a background for the changes which are taking place in the market place mostly in the new liberalized nations of the world. TheRepublic Of Ghana is one of the examples of these nations that become a star and model for the emerging market that have improved their policies and market structure due to the great issue of the relevance of the market in many developing countries. Therefore, its market has become suitable for both domestic and foreign firms by pointing out the needs of the market with the altered environment of the business (Appiah-Adu, 1997).

Some research examined the alternativeways whichmake betterment in the service quality in developing countries. For instance, Angur, Nataraajan, &Jahera (1999) gathered data from Indian banks to address issues related to service quality. The findings showedthat the SERVQUAL scale provided greater diagnostic information than the SERVPERF scale. While its five-factor concept was not applicable in the developing markets. In this case, no significant variance was found in the predictive capability of their measures. Additionally, both the test SERVQUAL and SERVPERF have alike convergent rationality, but SERVPERF seems to have greater discriminant validity than SERVQUAL (Angur, Nataraajan, &Jahera, 1999 and Malik 2020).

Around the world, many institutions provide financial,by mobile phone services, to their customers who don't want to use traditional banking. Some researchers examinedM-banking and its use of the mobile phone (Donner & Tellez, 2008). The data were gathered from India's urban region. The authors argued that contextual research is a critical input to effective 'adoption' or 'impact' research. The research results show that the adoption and the

use of this application well-known dynamics inside the Information and Communication Technologies and Development (ICTD) investigation community are based on three factorslike enlargement vs. alteration, immediateinterconnection, and a multi-dimensional meaning of faiththatgive furthertransparency to upcominginvestigation on m-banking/m-payments schemes (Donner & Tellez, 2008 and Raza, Shah, & Ali 2019). Furthermore, Jack &Suri(2011) stated that by the combination of mobile applications and money the person can easily perform transactions. Their study gathered the sample from the household of Kenya and showed the findings in two sections. The first section showed the rapid use of the mobile phone for transaction purposesby the mobile money known locally as M PESA – in the emerging world. Whereas, Thesecond section dealt with the mechanism, potential, and effect on the economy. The use of thing application depends upon thewages and property, locality, gender, and furthersocio-economic features, as well as the determinations for which the knowledge is used, counting savings, transferpayments, and direct buying of products and facilities. Additionally, the research presented data collected fromM PESA agents, who were responsible formoney in and money out facilities, and points out the account management difficulties they experience (Rosnidah, Muna, Musyaffi&Siregar 2019; Purwanto, &Loisa 2020).

Moreover, there is another study carried out by Sassi&Goaied (2013)to test the effects of financial development Information and the effect of Communication Technology (ICT) on economic growth. The sample of the study was collected from some MENA countries. The theoretical framework showeda positive effect of these components on the economy. To investigate the study the researchers used the dynamic panel model with classification GMM estimators. The study further incorporated the effect of ICT on financial development. The results showed that the impact of financial development put a more positive effect on the growth by better ICT infrastructure. The study assessed empirically these relations in some MENA countries. The findings showed three main components. Firstly, there is a negative but direct effect of the financial improvement on monetarydevelopment, which is support by the empirical literature. This ambiguous relationship may be linked to many phenomena but there was no clear explanation. Secondly, the outcome showed thatthere was a positive and importantstraightconsequence of ICT on financialdevelopment. This suggests that with improvement in ICT the MENA countries improve their information and Communication Technology. As a final point, the interfacebetween ICT diffusion and financial expansion is found helpful and important in the development regression. Which supports the better infrastructure of information CT for improvementand Communication Technology (Sassi&Goaied 2013).

According to Marumbwa (2014), the innovation in mobile telecommunication services helps to generate mobile transfer services in Zimbabwe. This innovation in mobiles brings competition among the three companies of the country name Econet, Telecel, and Netone along with traditional banking and financial institutions. The purpose was to search the controllingspecial effects of socio-demographic variables: age, gender, salary, and education and occupation status on the frequency of use (FOU). The user gets used to these MMT applications and their services. The results showed that age, gender, and income showa negative effect on MMT userreceiving. But education stages and occupationhave positive effects on the use and acceptance of MMT (Marumbwa 2014).

Research Methodology

The main objective of this paper is to investigate the mitigating influence of socio-demographic variables on the taking and usage of mobile banking services in developing countries, mainly in ulf region.Primary data is collected on consumer demographics, which include, age, gender, salary level, education level, and occupation status. The data were composed and note down during the interviews. The researchers also useda survey method that permittedthe collection ofassortedopinionsand proposals,particularly regarding the period and space restraints. The methods used were non-probability sampling techniques (convenient and purposive). The questionnaires were systematicallycirculatedrandomly at individuals, supermarketruns, shop places, tertiary educational organizations, and mainordinarypassageways.The data were also collected through face-to-face interviews with the respondents. Overall, 500 questionnaires were circulated as; Suhar—150 (101 valid); Muscat—100 (75 valid), and Salalah—60 (40 valid). There were216 respondentswho were considered valid. Data were collected from them. The response rate is about 70% because of the period, budget, and geographicaldistributionrestraints. Data were collected between August and September 2020. Different techniques of SPSS were used to perform the analyses which include descriptive statistics; and correlation analysis.

Research Model

This section presents the theoretical background and current research, conceptual model, and research hypothesis

      A.   Theoretical Background and Current Research

The two theories were proposed by Venkatesh et al., (2003). These two theories were Unified Theory of Acceptance and Use of Technology (UTAUT). The UTAUT aims to explain user intentions to use an Information system (IS) and subsequent usage behavior. There are four aspects that might affect the

practicepurpose and performanceexpectancy, struggleexpectation, communityeffect, and assistingcircumstances. Gender, age, skill, and voluntariness also considered important builds on practicepurpose and behavior (Venkatesh et al, 2003). The theory was constructedby the result of 8 models that previousinvestigations had used to illuminate IS practice behavior (See Figure 1.1).

UTAUT in the future is one of the most important theories to carry out research on IT adoption in Information Systems (IS). The model is constructedbased on 8 separate models, including the TAM model (Carlsson, Carlsson, Hyvonen, Puhakainen& Walden, 2006). UTAUT is suggested by Venkatesh et al., (2003) indefiniteunusual IT applications such as mobile banking, alteration, and amendment.

The study of Carlsson et al. (2006) examined the use of the UTAUT in Finland. It shows that performance and effort expectation werekeyfactorsthat affect theuse of mobile services. While supplementaryfactors such as belief, secrecy, ease, and charge were disturbing the behavioralpurpose (Min, Ji&Qu, 2008). Moreover, a study conducted by Lee (2009) in Taiwan examined the causesinducing the effects on the acceptance of I-banking, the research added the TAM and TPB with observeddanger and profithypotheses. The findings of the research show that performance, community, fiscal, time, and safety risk affect internet banking.

B. Conceptual Model and Research Hypothesis

The conceptual framework consists of two theories that were proposed by (Venkatesh et al., 2003) Unified Theory of Acceptance and Use of Technology Model (UTAUT), one additional factor is incorporate toinspect the factors whichdisturbing the acceptance of Mobile banking in Gulf region. In this section, we will discuss the constructs of the proposed model. The additional factor which is used to capture the effect on acceptance of M- Banking by the citizens of Gulf region is trust. The condensed model can cover the explanation of M- banking users in this context (see figure 1.1).
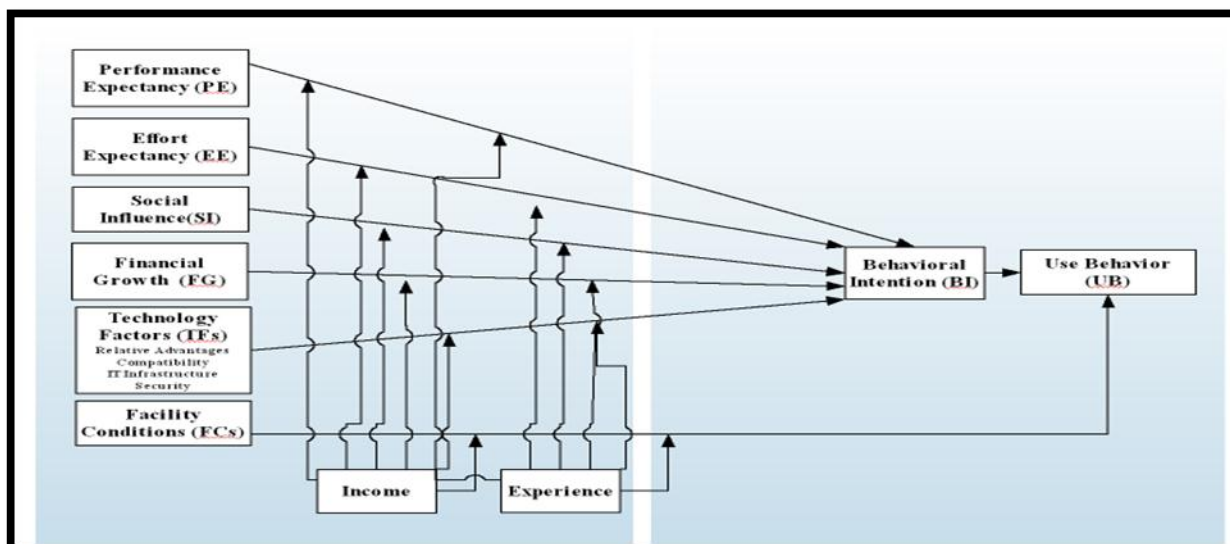

Figure 1. 1: Conceptual Model

C. Research Hypothesis

H1: Performance Expectancy (PE) impacts directly the behavioural Intention (BI) toward using the M-Banking services.

H2: Effort Expectancy (EE)   impactsdirectly the behavioural Intention (BI) toward using the M-Banking services.

H3: Social Influence (SI) impactsdirectly the behavioural Intention (BI) toward using the M-Banking facilities.

H4: Financial Growth impacts directly the behavioural Intention (BI) toward using the M-Banking services.

H5: Facility Conditions (FC) impactsdirectly the Use Behaviour (UB) toward using the M-Banking facilities.

H6:behavioural Intention (BI) impacts directly the Use Behaviour (UB) toward using the M-Banking services.

H7: Income moderates the relationship between Performance Expectancy (PE) and the (BI) toward using the M-Banking services.

H8: Income moderates the relationship between Effort Expectancy (EE) andthe (BI) toward using the M-Banking services.

H9: Income moderates the relationship between Social Influence (SI) and the (BI) toward using the M-Banking services.

H10: Income moderates the relationship between Financial Growth andthe (BI) toward Using the M-Banking services.

H11: Income moderates the relationship between Economic Risk (ER) andthe (BI) toward using the M-Banking services.

H12: Income moderates the relationship between Facility Conditions (FC) and the Use Behaviour (UB) toward using the M-Banking services.

H13: Experience moderates the relationship between Performance Expectancy (PE) and the (BI) toward using the M-Banking services.

H14: Experience moderates the relationship between Effort Expectancy (EE) andthe (BI) toward using the M-Banking services.

H15: Experience moderates the relationship between Social Influence (SI) and the (BI) toward the use of M-Banking facilities.

H16: Experience moderates the relationship between Financial Growth andthe (BI) in the direction of M-Banking facilities.

H17: Experience moderates the relationship between Economic Risk (ER) andthe (BI) toward consumption of the M-Banking facilities.

H18: Experience moderates the relationship between Facility Conditions (FC) and the Use Behaviour (UB) toward using the M-Banking services.

Research Findings

This section presents the obtained results. It exposesthe demographic profile of the sample members, results and reliability of the research questionnaire, and outcomes of the hypothesis testing.

➢ **Profile of the Respondents**

The researchers checked the properties of the sample population by the Frequency distribution test. The outcomes of Table 1 shows the dominance of men over women, the sample consisting of Gulf region banksusers. The sample consist of 55.1 % were men and that 44.9% of them were women. The table also shows that respondents with age more than 55 yearsold are 22%, 15.4% were between 44 to 45 years, 37.5% were 33 to 43 years old and 25.1% lies in the age group below 33 years (See Table 1).

Table 1: The Demographic Profile of the Respondent Bank Clients

Measure	Item	Frequency	Percentage (%)	Cumulative %
Gender	Male	119	55.1	55.1
	Female	97	44.9	100
Age (Years)	22-32	54	25.1	25.1
	33-43	82	37.5	62.6
	44-54	32	15.4	78
	55 and Above	48	22.0	100
Educational Level	Elementary School	67	31.2	31.2
	High School	45	20.8	52
	College degree	62	28.7	80.7
	Graduate degree	42	19.3	100
Income	No Income	23	10.6	10.6
	$500–$1000	40	18.4	29
	$1101–$2000	41	19.0	48
	$2001–$3000	40	20.0	68
	$3001–$4000	29	14.0	82
	Above $4001	43	18.0	100
Total		216	100%	

As considering the education of the respondents, Table 1 shows that 31.2% had elementary school education,20.8% had college-level education,20.8% had a high school education (20.8%) and 19.3% had graduate degrees In regards to the respondents'monthly income, Table 1 shows that 10.6% of them had no incomes, 14% of the respondents had monthly incomes ranging from $3001 to $4000. 18.4% and 18.0% of respondents with monthly incomes in the range of$500–OR1000. While 19.0% of the respondents have monthly incomes which lie within the ranges of OR1101–$2000 and 20% has income in the range of $2001–$3000.

➢ **Instrument Reliability**

The researchers used the Reliability Analysis, with Cronbach's alpha coefficient to test the reliability and consistency of the questioner. The instrument is consideredto be reliable if its coefficient value is equal to or more than 0.7. The outcomes of Table 2 shows that for all the research instrumentsthe coefficient value were more than 0.70. The value for UB and FG was0.711and 0.798respectively, which show that all instruments used in the questionnaire are highly consistent and reliable (see Table 2).

Table 2: Results of Reliability Analysis of the Research Instrument

Construct	No of Items	Item deleted	Cronbach's Alpha Coefficient
PF	4	None	.771
EE	3	None	.775
SI	4	None	.771
FCs	4	None	.726
PI	3	None	.742
FG	2	None	.798
BI	3	None	.731
UB	3	None	.711

The second side of the table shows that there is no need to eliminate the instrument item. In this context, Nunnally (1978) pointed out that if there is a little effect on the value of Cronbach's alpha coefficient then the eliminationof the instrument item will not be required. So in this particular research, no item is eliminated because it increases the reliability of the instruments.

➢ **Descriptive Analysis**

This typical analysis is used to check the effect of independent variables on the sample population or the dependent variable. It is also used to examine the effect of different factors on the adoption of mobile banking, especially in Gulf region. So Table 3 shows the complete summary of the variables like their means, standard deviations, minima, and maxima. So the analysis is divided into 3 categories with five levels for example the variable with a score less than 2.33 is placed in the lowest level, with a score range of 2.33 to 3.67 is placed in moderate level while with the score of more than 3.67 placed in high level.

Table 3: Descriptive statistics for, and coefficients of correlations between, the study variables (N = 216)

Construct	M [a]	SD [b]	1	2 [c]	3	4	5	6	7
1- PE	3.73	3.632	0.78	0.54**	0.42**	0.46**	0.57**	0.34**	0.75**
2- EE	3.62	3.824		0.48**	0.48**	0.47**	0.52**	0.35**	0.66**
3- SI	3.77	3.785			0.34**	0.32**	0.65**	0.54**	0.53**
4- FC	3.82	3.812				0.361	0.55**	0.63**	0.64**
5- PI	3.83	3.777					0.551	0.76**	0.52**
6-FG	3.87	3.675						0.742	0654*
7- BI	3.72	3.664							0.75**
8- UB	3.63	3.822							

a. M: Mean.

b. SD: Standard Deviation.

c. ** 0.01 level of significance.

Table 3 points out that the mean values of allvariables are above 3.64 and significant, thus suggesting that the component used for analysis has a positive effect on the intentions of the customer regarding the usage of mobile banking in developing countries. The FG had the highest mean value (3.89) with a standard deviation of 3.676. On the second side, the EE had the lowest mean value (3.61) and a standard deviation of 3.823. while the FCs and PEhad a significanteffect on the clients for the use of mobile services for banking especially in the developing countries.

Evaluation of the Quality of the PLS-SEM

The recent research used the least-square structural equation with the help of SmartPLS software, v. 2.0 M3. According toHenseler et al. (2009),this software is mostly used in the research that is conducted on the marketing and management sector.As Hair et al. (2011) and Valerie, (2012)suggested that the results of this technique come in two parts. The first part is used to check the validity and reliability of the model by the analysis of confirmatory factors. While in the second part the structural model is verified by its R^2 value. The value also explains how well the model explains the effect of the variables with associated path coefficients. These two stages are shown in Figure 1.2.

Figure 1. 2: The Measurement and Structural Models

❖ **The Original Study Model**

The model used for this research encompasses the 25 variables that includemanifest indicators and the addition of 8 more variables that are the result of 5 other independent variables, two moderating variables, and one exogenous variable (Figure 3). Allvariables are tested to find out the answer to the hypothesis (see Figure 1.3).

Figure 1. 3: The Original Study Model

❖ **The Coefficient of Determination (R²)**

The study conduct by Hair et al. (2011) showed that the value and significant level of (R^2) being used to calculate the PLS-SEM. The main purpose of using this technique is to get the information regardingdependent and independent variables. The value of R^2, informs about the quality of the model. It explains the percentage of variance in the independent variables by the dependent variables. The R^2 values 0.20 indicate a highvariance in a variable like a consumer's behavior. In the marketing research, the value of R^2 shows the substantial effect on 0.75, moderate on 0.50, and weak effects on 0.25 value. Figure 4 shows the summarized picture of the results, which shows that BI hasR^2 equal to 0.934. whilethe R^2 value is the same for PE, EE, SI, FCs, and PI that is 92.1%. which explain the effect of PE, EE, SI, FCs, and PI on BI to accept the mobile banking is 92 in Gulf region, which shows that 79.8%variance in BI is explained by UB. (seeFigure 1.4)
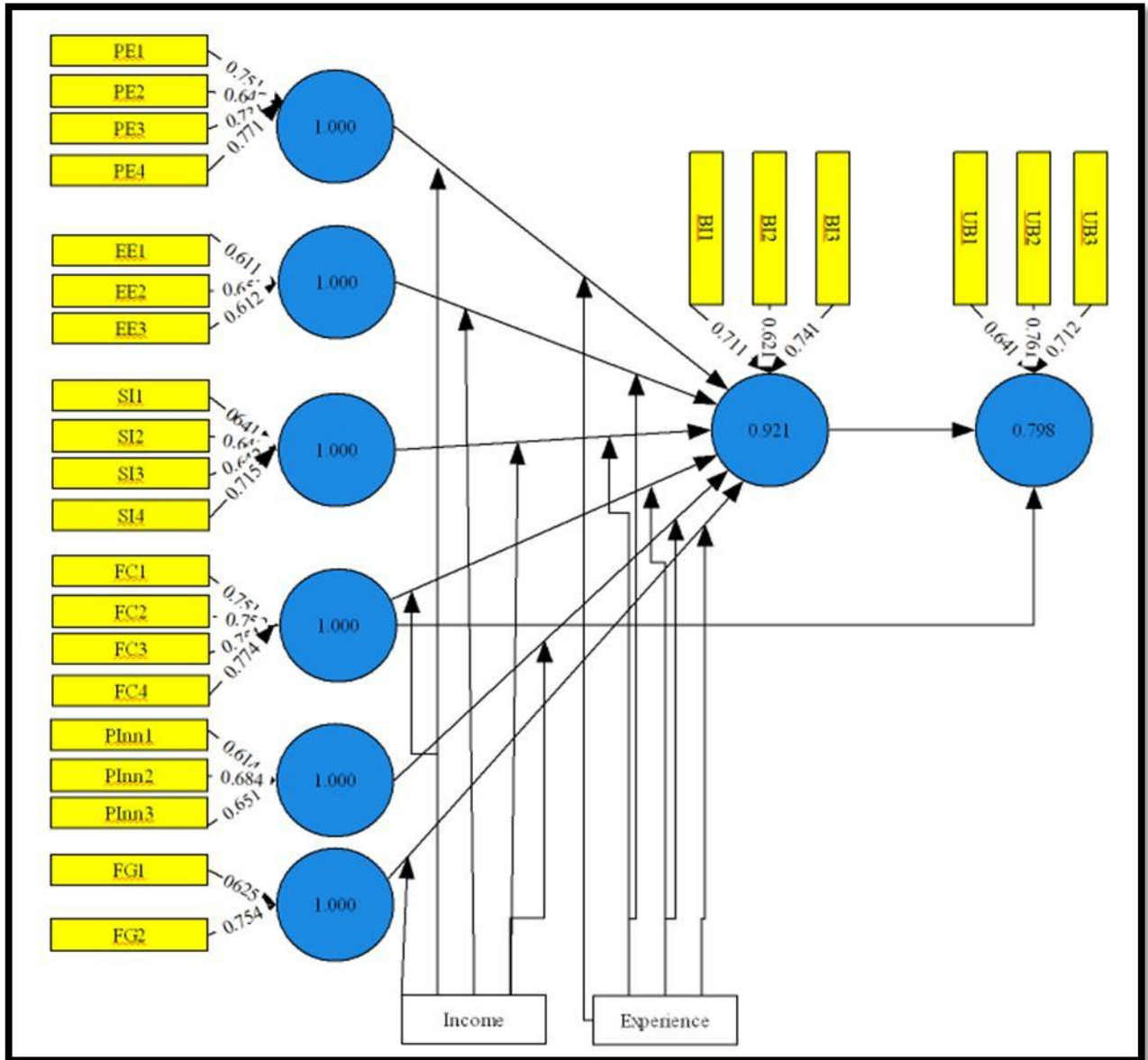

Figure 1. 4: The Path Coefficients and R² Values

❖ **Hypotheses Testing**

Figure 1.5 shows a complete picture of the model of investigated variables along with R^2 and path coefficients. The obtained results show that PE, PI, SI, and EE explain 15.6% of the variance in BI in acceptance of mobile banking services in Gulf region. The outcomes also show that BI explains the 65.8% variance in UB, 65.7% is explained by FC.

 Moreover, the outcomes uncover that 65.7% of the variance in the UB is accounted for by the FCs, while 65.8% of the total variance in the UB is explained by BI.
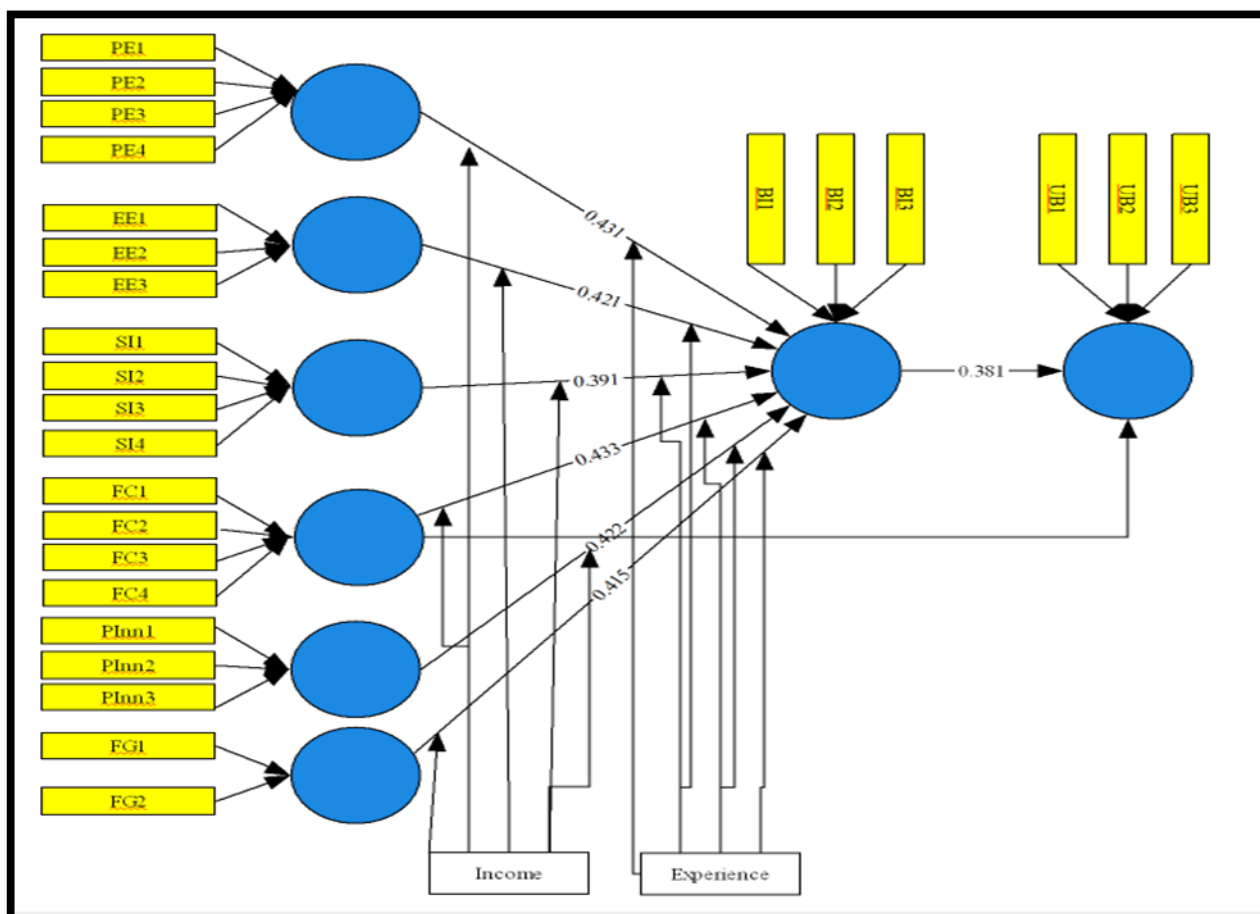
Figure 1. 5: The t values for the Study PLS Model

Table 4 shows the multiple regression in demand to find the variables which significantly affect the acceptance of M-banking by the banking sector of Gulf region, along with moderating variables. The analysis (Table 4). The results show that the inclusion of moderating variable does not increase the significant level of the variables.

Table 4: resultsof multiple regressions variables predicting behavioral intention (with moderating effects)

Constructs	B [a, b]	t	Sig. [c]
PE × Income	-.079	-2.010	.047*
EE × Income	.050**	1.316	.187
SI × Income	.034	.875	.382
FG × Income	.056*	1.503	.114
FC × Income	.045**	.367	.715
PE × Experience	-.118	-1.160	.249
EE × Experience	.113	.998	.323
SI × Experience	.055**	.472	.636
FG × Experience	-.114	-1.141	.285
FG × Experience	.111**	.865	.636

*: 0.05 level of significance,**: significant at the 0.01 level,

Research Contriutions

This research is one of the few that has been done to improve financial development in the Gulf region during the covid-19 pandemic. This review covered performance efficiency problems, a comparison of existing models, and a discrepancy analysis of existing models in the banking sector.The aim of this study is to identify the

strengths and weaknesses of each model that the proposed model is based on. The scholarly contributions made by this review are summarized below.

- The study's key contribution is a thorough understanding of the factors that influence financial development. A review of the literature in the field of financial development during the covid-19 pandemic showed the need for more empirical studies, to the best of the researcher's knowledge. This analysis consolidates and extends the research performed in this area dealing with people issues. "Overall financial growth is important, but productivity is even more important.".As a result, this is one of the few studies on factors influencing financial growth during the covid-19 pandemic conducted in a Gulf academic environment.
- There is a scarcity of research that contributes to awareness as an explanatory empirical analysis of financial development in the Gulf region's banking sector. As a result, this study contributes to a better understanding of the factors that influence the financial growth of people in the sense of normal banks, as well as filling in gaps in the literature.
- Another significant contribution was made because previous financial development studies were mainly presented in a different cultural sense than the Gulf region. The findings of this study were used to supplement established theory by adding to our understanding of financial development practices in a new context.

Conclusion

This particular research is conduct to define theeffects of numerousaspects on the BI for the usage and adaptation ofM-banking services in developing countries. The study takes into account the country of gulf region for its research. Moreover, the research points outthe impact of Financial Growth on acceptanceof M-banking and givesa clear picture of its relationship with the workers of BI to adopt m-banking services. The outcomes of the study show the significant and positive effect of financial development in the adoption of M-banking and its usage in developing countries. The findings also explain the role of m-banking in boosting the performance of emerging economies. So further research can be possible if incorporate the demographic factor like skill, awareness, and payon M-banking acceptance as well as their possiblespecial effects on the relationshipbetween the investigator factors and the studied factors related to theadoptionand the use of M-banking.

The outcomes of this research highlight the factors that affect the usage and adoption of M-banking. The main reason for the increase in the usage of M-banking in developing countries is the simple and easy features of the application and its friendly usage, which attract more and more people towards it. The research also suggests that the banking sector should pay attention to the manufacture and the progressof the applications that fulfill the requirements of their customers. The application must be of high quality with the absence of the risk of the loss of money, its transaction must be safe and sound. Boosting the level of acceptance of M-banking facilities should benefit, both the banking firms and the clients. It may help banks to reduce their budget which is used in the production of new branches while customerswill able to save their time, money, and energy thatcan be wasted by visiting the bank. It also provides the opportunity to the banking sector to get access to people with less income and education. Many banks in developing countries have already implemented the mobile banking application which has helped them to flourish and generatesignificant and positive effects on their economics. It has also helped them to provide.

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