

# The Effect of COVID-19 Pandemic on the Progress of Financial Inclusion through Mobile Financial Services in Bangladesh: An Explorative Analysis

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**Abstract:**

**Background:** Financial exclusion is considered as a great barrier towards the way to eradicate poverty in the economy like Bangladesh. Digital financial technology can be used to solve such problems by accelerating the easy and cost effective access to the financial products and services through mobile banking. In Bangladesh, mobile banking did not get that much focus prior to the Covid-19 pandemic period. Hence, the objective of this study is to explore how the Covid-19 pandemic impacted the progress of financial inclusions through mobile financial services in Bangladesh.

**Methods:** This paper is interpretive in nature. Documentation technique has been adopted for data collection and reporting. Only the Secondary data has been analyzed and interpreted to achieve the objectives of this study.

**Results:** The finding reveals that both the registered and active mobile banking customers and mobile banking agents have increased during the pandemic to new-normal era. Due to the government's appropriate policies and initiatives, some of the mobile banking products such as: salary disbursement, utility bill payment, merchant payment, inward remittances etc. has been turned out as the most potential instrument to ensure the future expansion of financial inclusion in Bangladesh. The increase of the adoption rate of those mobile financial services also indicates the people's positive behavioral changes towards mobile banking in Bangladesh and hence, largely contributes to the increasing financial inclusion during pandemic. Lack of security, trust, acceptability, financial and digital illiteracy; high cost; lack of ease of use; poor mobile connection issues and so on were observed as the fundamental challenges of MFSs in Bangladesh.

**Conclusion:** Joint collaboration of Government and private sector must be required to develop a cost-effective, user-friendly, trustworthy mobile banking platform under the concurrent post pandemic challenging environment.

**Keywords:** Mobile Financial Services (MFSs), Mobile Banking Products and Services, Financial Inclusion (FI), Mobile banking transactions, Documentation technique, Cash-in, Cash-out, Person-to-Person (P2P), Inward Remittance, Salary Disbursement, Utility Bill Payment.

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## I. Introduction

Global community has been experiencing one of the most terrible, challenging and unpredictable outbreaks of the pandemic called "Covid-19" since December, 2019. Covid-19 is a highly contagious disease caused by the virus 'SARS-COV-2'<sup>1</sup>. The pandemic started affecting Bangladesh with the first confirmed case on 8<sup>th</sup> March, 2020, and subsequently, the whole country moved into lockdown on 26<sup>th</sup> March, 2020<sup>2</sup>. All public and private sector's organizations, except emergency services, remained closed to prevent further mass transmission. The banking offices however, were kept open for limited hours with some selective range of banking services. To ensure the social distancing, Bangladesh Bank encouraged the general public to rely more on adopting online and mobile banking services, use of cheque, and other similar services instead of cash transactions<sup>3</sup>. This has virtually increased the demand for mobile financial service (MFSs) in Bangladesh during that period of pandemic crisis.

Mobile banking has been considered as the key determinant for the realization of financial inclusion. The drastic growths of information technology, particularly in handheld mobile devices have created a great opportunity for modern innovative mobile financial services (MFSs). The advancement of mobile phone technology has also impelled banking and financial industries to initiate MFSs to non-financial sectors. Mobile banking refers to accessing mobile financial service which allows consumer to get access banking services such

as checking account balance, withdrawing and depositing money, transferring funds, utility bill payments, remittance, payment for shopping and made the banking more easier, faster and cost effective<sup>4,5</sup>. MFSs is an approach to offering financial services that combines banking with mobile wireless networks which enables users to execute banking transactions<sup>6</sup>. Mobile technology is referred to a payment channel which not only addresses the demand side i.e. opportunity for financial inclusion, but also, the supply side i.e. opportunities for financial intermediaries so that they can offer a wide range of banking services to the people living in remote places<sup>7</sup>.

In Bangladesh the term MFSs are also recognized as mobile banking or m-banking<sup>8</sup>. It is a kind of financial service provided by either a bank or any other financial institutions. By using a mobile phone over a cellular connection, an account holder can avail different financial services they need. Customers usually need to open a mobile banking account with the help of registered SIM, national ID card, and picture<sup>9</sup>. Financial inclusion plays a critical role in ensuring all-inclusive socio-economic development in a country. Most of the poor classes of the developing and underdeveloped countries are yet to get direct or indirect access to the financial services to meet their financial needs<sup>10</sup>. Financial inclusion indicates the ease and affordable accessibility to the several kinds of financial products and services that meet people's needs of transaction, payments, saving, credit and insurance<sup>11</sup>. The banking sector has an immense responsibility to adopt financial inclusion friendly strategies so that all kinds of financial services can be facilitated to the underprivileged section of the society at an affordable cost. This phenomenon also indicates all about bringing the under-banked and unbanked people together into an inclusive financial structure to provide them with the opportunity to get access to the financial services and therefore, to attain economic growth as well as social empowerment<sup>12</sup>. In bigger sense, financial inclusion can also be seen as the process of broadening the access and usage of financial services to all equitably, fairly and transparently with special focus to the needs and requirements of the weaker groups of the society at an affordable cost that may enable underdeveloped countries to attain socio-economic goals<sup>13,14,15</sup>. The Global Findex database shows that 1.72 billion adults have obtained an account either in a financial institution or MFSs in between the years of 2011-2014 which indicates the global rise from 62% to 69%. In developing economies this share rose from 54% to 63%. Women, particularly in developing economies remained 9% as compared to that of male having bank accounts<sup>16</sup>. Banks have been playing a great role by providing financial services to the unbanked people by means of digital and MFSs<sup>17</sup>. Mobile banking allows the customers to get access to the banking and financial services through their mobile device from remote places. At once only SMS services were provided by mobile banking, which was widely known as SMS banking. During 1999, European banks became the pioneer in introducing MFSs due to the vast use of smart phones with wireless application protocol support<sup>18</sup>.

### ***1.2. Financial Inclusion and Mobile Banking in Bangladesh***

Since the liberation in 1971, the Government of Bangladesh has continued its efforts to make growth in financial inclusion by introducing different financial programs to accommodate the financially excluded people<sup>19</sup>. During 2020, 48% of the adult populations were brought under the financial inclusion program, about 140 % more than 20 million in 2013<sup>20</sup>. Currently, there are 4 nationalized commercial banks (NCBs), 2 state-owned specialized banks, 43 private commercial banks (PCBs), 9 foreign commercial banks (FCBs) operating in Bangladesh<sup>21</sup>. In terms of the account holding number, even though a remarkable positive progress has been shown in all the demographic categories in 2017, the actual progress of financial inclusion is however, a bit sluggish. About 50% of the total population including women, marginal farmers, informal sector's business and other excluded groups are still deprived of having access to the basic level of formal financial products and services<sup>5</sup>.

Due to the lack of financial literacy, complex loan disbursement procedures and collateral requirements, a large number of people especially low earners and farmers are still unbanked<sup>22</sup>. A report reveals only 36% have access to the formal financial service while 43% to semi-formal finance<sup>23</sup>. Under this situation, establishing a comprehensive inclusive financial system has been turned out as the most vital factor for the socio-economic development of Bangladesh. Currently, there are 58 scheduled banks with more than 10,000 branches operating throughout the country. Many scholars however, considered this number as not enough to cover 164.7 million people and thus noticeably made a financial gap for the country<sup>24</sup>. In an attempt to fill up this financial vacuum, various innovative MFSs were launched by the BRAC Bank Limited (bKash), Dutch Bangla Bank Limited (Rocket) during 2011<sup>24</sup>.

Several researches have already conducted their research on the mobile banking and financial inclusion in Bangladesh such as: evaluating the impact of customer retention and perceptions on mobile banking; impact of mobile banking on the acceleration of financial access; the influence of perceived financial cost on the behavioral intention to adopt mobile banking; impact of MFSs innovation on growth and financial development; the influences of perceived usefulness, perceived ease of use, compatibility, perceived self-efficacy, subjective norms, perceived credibility, perceived risk, perceived financial cost, and user predisposition on the adoption of

mobile banking; customers' attitudes and intentions to adopt MFSs<sup>25,26,27,28,29,30</sup>. On the contrary, the role of mobile banking instruments as being the catalyst for financial inclusion in Bangladesh especially under Covid-19 pandemic situation has appeared as an unexplored research area.

Therefore, the objective of this study is to discover the adoption trends, future challenges and prospects of mobile financial services as the catalyst for the expansion of financial inclusion in Bangladesh during Covid-19 pandemic to the new normal period.

## **II. Literature Review**

MFSs basically provide mobile based financial services accessibility to the unbanked people. Over the last two decades, MFSs has been considered as one of the most innovative and effective means to extend financial inclusion by offering new financial products and services to the excluded people<sup>31</sup>. In fact, MFSs allows its' customers to interact with the mainstream banks via mobile channel by offering diverse kinds of mobile products and services such as mobile payment, mobile money transfer, mobile international remittance service<sup>32</sup>. Among these mobile banking services, mobile payment for purchasing goods or services either at the point of sale or remotely has been increasing particularly in developed countries<sup>33</sup>.

A large number of researches were conducted to examine the escalation of financial inclusion fueled by mobile banking products and services all over the world. Khatun, Mitra & Sarker<sup>25</sup>, examined the impact of mobile banking in accelerating people's financial access during Covid-19 pandemic in Bangladesh. The purpose of this study was to explore the use of MFSs to expedite people's financial access. The study found that different types of mobile banking transactions such as cash in, cash out, salary and utility bill payments and P2P, have significantly contributed toward increasing the financial services accessibility. Bangladesh Bank and University of Dhaka conducted a joint research to explain the impact of MFSs on family, household, small and medium business enterprise in Bangladesh. The study found mobile money transfer, bills payment, savings, were the most preferred products and services among the household while revenue collection and supplier's payment through mobile banking were getting popular. The study established that MFSs significantly affected financial inclusion in Bangladesh<sup>34</sup>. In a newspaper published article reported that, offering mobile banking products and services in rural areas is absolutely significant to the financial inclusion in Bangladesh as the formalities and cost of opening and maintaining an account in a mobile bank is relatively less than that of regular banking account<sup>35</sup>. Moreover, due to less paperwork involved in account opening, maintaining and doing transactions, the preference for MFSs were found increasing in the rural areas especially with high illiteracy rate<sup>35</sup>. Among the other mobile financial services, cash-in, cash-out, and P2P transactions were more likely contributing significantly in financial inclusion. Furthermore, the mobile banking agent's role in delivering mobile deposit and mobile cash withdrawal and thus make positive impact on financial inclusion<sup>36</sup>.

Kim et al. (2018)<sup>37</sup> in their qualitative study viewed the success of m-Pesa in facilitating a large scale of financial inclusion in Kenya. Furthermore, investigating the m-Pesa's contribution Merritt (2011)<sup>38</sup> observed the positive impact of mobile money transfer and remittance services on financial inclusion in Kenya. Isabwa (2021)<sup>39</sup> examined the impact of mobile fund transfers, mobile cash withdrawals and mobile deposits products and services on the financial inclusion in Kenya. The study revealed a significant positive effect of Mobile financial service on the financial inclusion among commercial banks. Blaise and Kosgei (2021)<sup>40</sup> however, found an insignificant relationship of mobile money distribution with financial inclusion. Ouma, Odongo & Were (2017)<sup>41</sup>, examined the impact of MFSs on the saving mobilization of the people of sub Saharan Africa. The study found a positive relation between MFSs and saving rate at the household level.

Fanta et al. (2016)<sup>42</sup> in their policy paper examined mobile money ownership and its determinants factors that affect the adoption of mobile money across the 11 countries of the SADC region. The study found so many determinant factors such as low penetration of mobile phones; effect of mobile banking substitution such as; access to ATMs, internet banking, bank account ownership; unawareness and negligence of mobile banking among women and uneducated rural people; popularity among unemployed people etc. Among all these findings, remittances service has shown a strong link with mobile money adoption even though some of the countries showed the exception. The study also signified the high adoption rate of such MFSs as buying air time, sending or receiving mobile money while, on the other hand the adoption rate of bill payment, savings, credit and insurance product services were found limited.

## **III. Methods**

Bhattacharjee (2012 page: 103-112)<sup>43</sup> mentioned the superiority of documentation technique of data collection for conducting interpretive research. This study involves a systematic approach as mentioned by Okoli (2015)<sup>44</sup>, which allows researchers to summarize and synthesize the facts from prior research. Therefore, this study is interpretive research and documentation technique has been adopted. A systematic review of existing relevant literature has been conducted to achieve the objectives of the study. The basic three steps of systematic review suggested by Tranfield, Denyer, and Smart (2003)<sup>45</sup> have been adopted. Firstly, clear-cut

planning and scope of the study has been prepared. Secondly, that plan has been executed in the form of searching, screening and synthesizing prior knowledge followed by the third steps of reporting the results. Only Secondary data has been collected and analyzed to achieve the research objectives. The principal sources of data were annual reports; newspaper articles; journal articles; policy- papers; webpage of Bangladesh Bank; Bangladesh bureau of statistics (BBS), Bangladesh telecommunication regulatory commission (BTRC); and World health organization (WHO). A well structured plan was developed to collect relevant data on the scenario of the pre and after-effect of COVID-19 pandemic on financial inclusion through MFSs in Bangladesh during 2018 to 2021. To explore the financial inclusion through mobile banking services during; before and after the pandemic, a comparative measurement of the adoption of mobile network subscribers, mobile banking registered customers, number of mobile banking agents and different types mobile banking transactions has been conducted within the timeframe of 2018 to 2021. To find out the obstacles and prospects of mobile banking in Bangladesh, a review has been carried out on previous literature from different international and national journals.

#### **IV. Findings And Discussion**

##### **4.1 Mobile Adoption Status in Bangladesh**

Because of the rising number of mobile subscribers and internet users, the Mobile financial services (MFSs) sector has become one of the most potential sectors in Bangladesh. MFSs has emerged as the most potential among the financial sector of Bangladesh as the number of mobile phone subscribers has increased significantly over the last decade (Figure: 1). There has been 98.53% growth in mobile phone subscribers in between the years 2012 to 2021. In the Covid-19 affected year 2019 only shows a 7.17% growth of mobile phone subscribers. Furthermore, in 2021, among total 171.85 million mobile network subscribers, 110 million use the internet; 111.46 million are registered with the mobile banking system and are evidently transacting around BDT 20 billion per day<sup>46,47</sup>. Due to the ongoing high penetration of MFSs, the marginalized unbanked people can now get more access to the banking services and facilities, which has been ultimately making a large contribution to the country's financial inclusion as well as to economic growth.

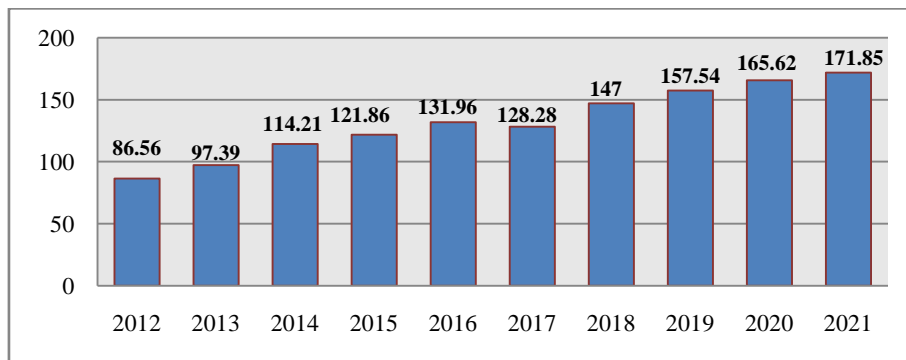


Figure 1: Mobile Phone Subscribers (in millions)  
[Source: Compiled by author from the BTRC, 2022<sup>46</sup>]

##### **4.2 Mobile Banking Progress in Bangladesh**

MFSs have grown considerably better than anticipated in Bangladesh fueled by Bangladesh Bank's special instructions of including several social transactions during the Covid-19 pandemic such as: account opening and payment of garments workers; government stipend and scholarship; transaction of several other government subsidies etc. with minimum fees or no cost. The ecosystem of operating MFSs as suggested by Victor (2014)<sup>49</sup> is currently in favor of Bangladesh. Such an ecosystem consists of such very critical stakeholders as: mobile network facilitators, mobile banking service providers, merchants, mobile banking clients, and agents<sup>36,49</sup>. At this moment, there are four mobile phone operators namely: Grameen Phone Limited; Robi Axiata Limited; Banglalink Digital Communication Limited; and Teletalk Bangladesh Limited operating in Bangladesh with a huge number of 181.02 million subscribers<sup>46</sup>.

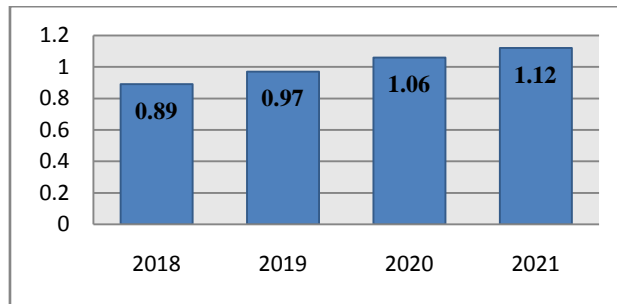


Figure: 2 Number of mobile banking agents in 2018-2021 (in millions)  
[Source: Compiled by author from the Bangladesh Bank, 2022<sup>48</sup>]

After recognizing the above development, Bangladesh Bank started to stimulate all the scheduled banks to play an active role in socioeconomic development through the expansion of financial inclusion by means of mobile financial services. Currently 14 commercial banks and Bangladesh Post Office have been facilitating their mobile banking services. The mobile banking agent number has also increased during the pandemic (Figure: 2). Between 2018 to 2021, a considerable 25.84 percent increase of mobile banking agents indicates how the mobile banking users were being relied on the country’s existing mobile banking system during the harsh Covid-19 pandemic period.

#### 4.3 Mobile Banking Status from Pre-pandemic to New Normal Time Period

Since 2019, due to the colossal level of Covid-19 outbreak, the world has been passing through an unprecedented crisis. This pandemic has changed the way we do work, shop, transaction, study, travel etc. In order to stay safe, likewise other daily activities, the banking transactions were also being tended to be conducted through mobile and online. Mobile banking in this regard has emerged as a true consideration to offer an alternative, easiest and safest financial access to the general people. In Bangladesh, both the registered and active mobile clients’ number has increased rapidly after the countrywide Covid-19 lockdown on 26<sup>th</sup> March, 2020 (Figure 3). The MFS registered and active client’s number climbed up by 74.32% and 10.13% respectively during 2018-2021. The number of active clients remained relatively stable as compared to the registered customer number in the same period of time. This indicates that people are more likely getting used to the mobile banking system and started adopting more and more during the lockdown to the new normal period of time.

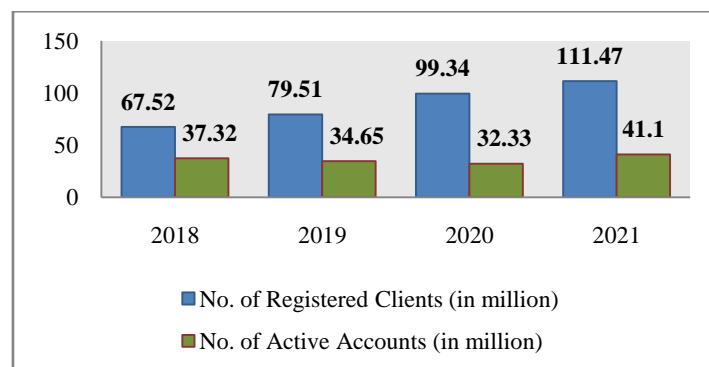


Figure: 3 Mobile clients number in 2018-2021 (in millions)  
[Source: Compiled by author from the Bangladesh Bank, 2022<sup>48</sup>]

The number of mobile banking customers and agents has increased significantly particularly for the decision made by the both public and private sector organizations for sending/receiving money through mobile banking. Moreover, the augmented technological adoption tendency by all classes of people has broadened the mobile banking practices more than ever<sup>50</sup>. People are now more likely to get used to the digital habituation to pay their utilities bill and other payments through mobile banking. The increasing trends of salary payment, utility payment, merchant payment, government payment and other transactions during 2020-2021 indicates that the general people have started relying on all these mobile banking services in the pandemic to new normal (Figure: 4 and Figure: 5). On the contrary, although a wide range of mobile banking products and services are available in Bangladesh, the major transactions are still concentrated mostly in some necessary services such as: person-to-person (P2P) transfers cash-in and cash-out. In terms of monthly transaction value, only 5% of transactions made for utility bill payment purpose and salary disbursement. The major transaction made up of 95% was conducted for the purpose of cash-in or cash-out and P2P transfers<sup>47</sup>. In comparison of the volume of

transactions, among different mobile banking products and services that are currently available in the market, cash-in, cash-out, and P2P services were found as the most preferred MFSs among the mobile banking users in Bangladesh (Figure 4 and Figure 5).

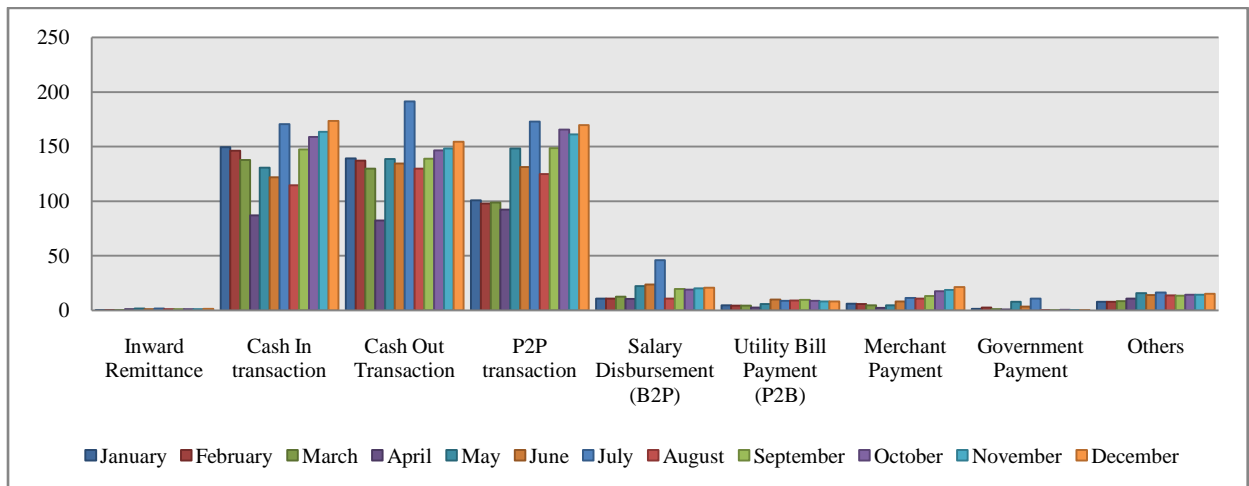


Figure: 4 Product-wise monthly mobile banking transaction in 2020 (amount in BDT billion)  
 [Source: Compiled by author from the Bangladesh Bank, 2022<sup>48</sup>]

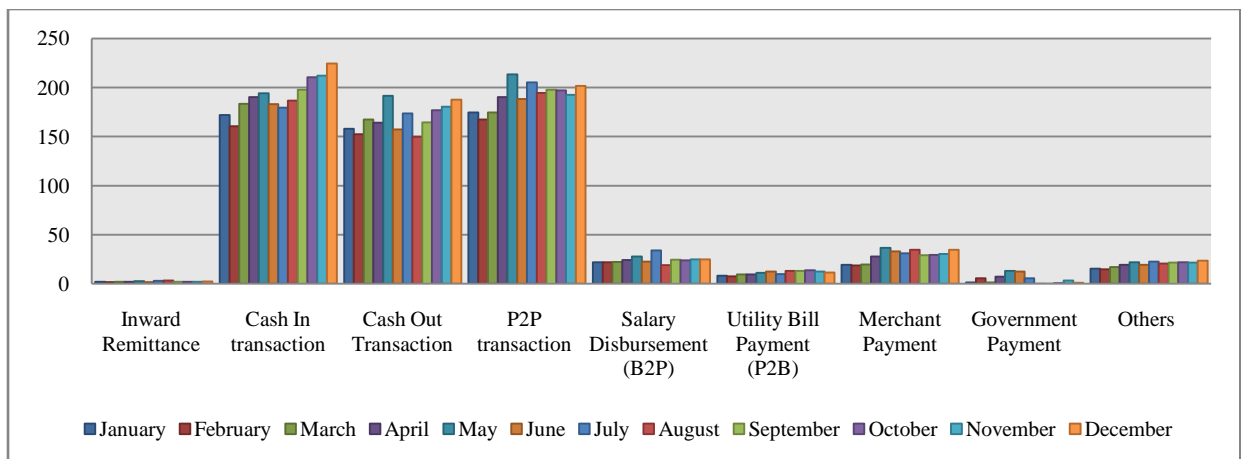


Figure: 5 Product-wise monthly mobile banking transaction in 2021 (amount in BDT billion)  
 [Source: Compiled by author from the Bangladesh Bank, 2022<sup>48</sup>]

Both the Figure: 4 and Figure: 5 elicited the monthly transactions for each of the mobile banking services in 2020 and 2021. The graphs depict that averagely all the MFSs increased in each of the months of 2020-2021. Except cash in transaction, all other transactions have reached at its pinnacle level in the month of July, 2020, whereas, during 2021 a steady growth has been observed in all kinds of mobile banking products and services throughout the twelve months.

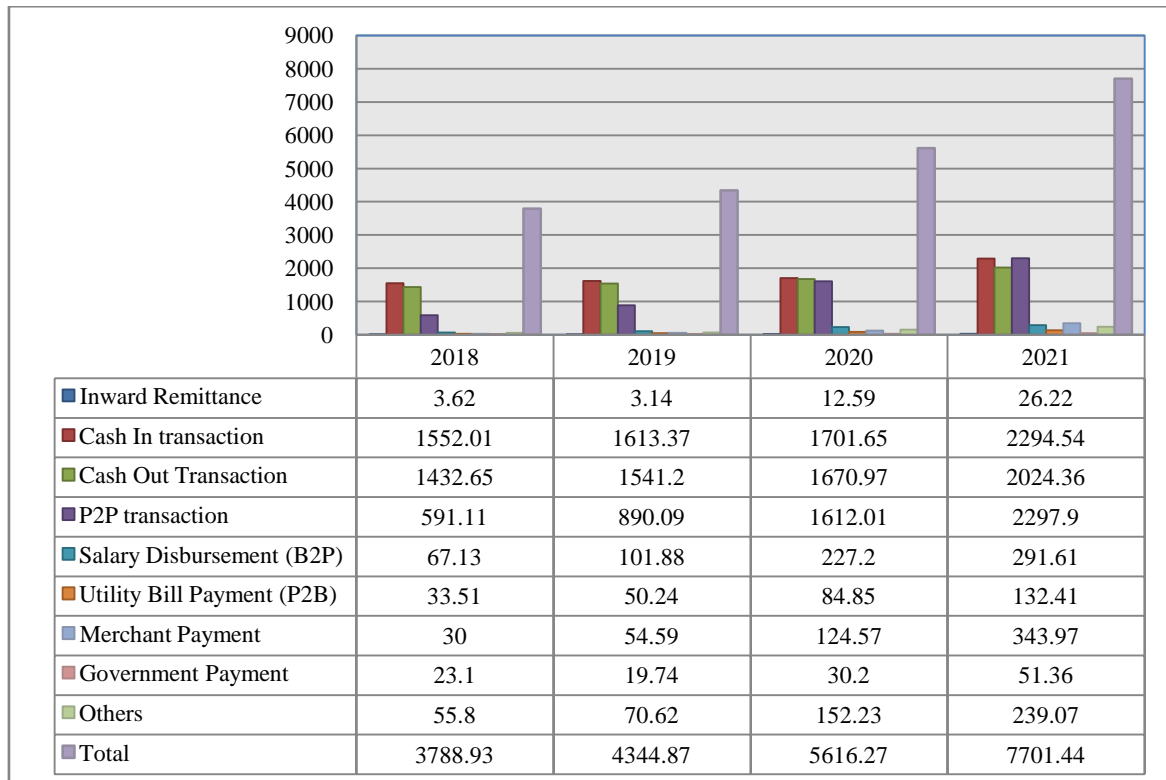


Figure: 6 Product-wise yearly mobile banking transaction in 2018-2021 (amount in BDT billion)  
 [Source: Compiled by author from the Bangladesh Bank, 2022<sup>48</sup>]

Considering the yearly transaction of different mobile banking products: cash-in, cash-out and P2P transactions were found as the leading categories and mostly adopted mobile banking services during the pandemic to new-normal period of time (Figure: 6). In 2018, just the preceding year of the pandemic, the yearly cash-in transactions were about BDT 1552.01 billion, which has grown by 47.84 percent in the new-normal at 2021. The yearly cash-out transaction stood at BDT 2024.36 billion which is 40.4 percent higher than that of 2018. The person to person (P2P) transaction has increased remarkably by 288.74 percent during the same period. A drastic growth has also been observed in case of salary disbursement (B2P), utility bill payment (P2B), merchant payment and other transactions.

Due to the Bangladesh Government's official decree to pay garments worker's salary and soft loan through mobile banking channel as mentioned by Hassan (2020)<sup>51</sup>, salary disbursement transactions stood at BDT 291.61 billion in 2021 from BDT 67.13 billion in 2018. Merchant payment, inward remittance, and other transactions have also increased dramatically by thousands, more than six hundred and three hundred percent respectively from pre-pandemic period 2018 to the new-normal period 2021. A 295 percent growth in the utility bill payment (from 2018 to 2021) through the mobile banking services reveals the positive impact of the Covid-19 pandemic lockdown on the behavioral pattern of general people towards the mode of utility bill payment.

The above finding and analysis indicates that the Covid-19 pandemic had left the general people prone to adapt to a greater extent to the mobile financial services in the history of mobile banking in Bangladesh. The radical changes in the adoption rate of the mobile banking services particularly the inward remittance; utility bill payment; salary payment; merchant payment etc. has also opened a new avenue of opportunities for the further development of financial inclusion through the mobile banking in Bangladesh. In this regard all the 57 commercial banks in Bangladesh can build up a MFSs ecosystem model with the mobile phone operators, agents and other stakeholders to cover the 50 percent segments of population who are yet to get access to any form of formal financial services<sup>24</sup>. Therefore, the policy makers of Bangladesh should pay more attention to the promotion of those freshly demanded MFSs and ensure the wider availability of safer and cheaper mobile banking products and services along with the other well accepted MFSs like: cash-in, cash-out and P2P transactions.

#### 4.4 Governmental Approaches towards the Acceleration of Financial Inclusion through MFSs during Pandemic

In order to prevent Covid-19 contamination among mass people, the government of Bangladesh took a bundle of initiatives concurrently to let them stay at home safely and work from home. In April, 2020,

Bangladesh Bank restricted the regular operations of all banks while, instructed all the employees of export-oriented industries to open mobile banking accounts for dealing with salaries and allowance payment. Opening a new mobile bank account was made easy, kept free of charge and a certain level of awareness was provided to insist all the readymade garments workers to open a mobile banking account<sup>52</sup>. As a result, Bkash, Rocket and Nagad the leading three mobile banking brands alone got 0.97 million, 0.55 million and 0.4 million clients respectively during that emergency period<sup>52</sup>. Moreover, Bangladesh Bank decided not to charge anything for up to BDT 1000 cash-out transactions and increased the P2P transaction ceiling up to BDT 200000 from BDT 75000 per month. Due to the governmental sensible decision during the pandemic, very negligible MFSs like inward remittance got life and as a result 'bkash' only experienced a 144 percent increase with BDT 1.38 billion inward remittance transaction<sup>53</sup>.

#### **4.5 Obstacles of Financial Inclusion through the Mobile Banking in Bangladesh**

There is no doubt that MFSs can act as the key and immense facilitator towards financial inclusion in the economy like Bangladesh. However, such a shift from traditional banking to the digitized mobile financial services will certainly face a great deal of obstacles and for which there need be accompanied by required policy, infrastructure, regulation, and support. Because of such obstructive factors as: lack of awareness, financial illiteracy, high cost, lack of physical access, and low level of technological infrastructure, only 36 percent of total adult population has got formal financial access while 43 percent of them have quasi-formal financial access<sup>23</sup>. Bangladesh is one of the ten countries in the world having high mobile phone and internet users. Nevertheless, high perceived level of risk and perceived cost are working as the most significant contributory factors to restrict the financial inclusion by means of mobile banking in Bangladesh<sup>55</sup>. Moreover, some of the prior studies found that customer attitudes were positive towards those mobile banking facilitators who made and kept the promises and remained trustworthy<sup>30,55</sup>.

Lee et al. (2022)<sup>56</sup> observed the gender gap as one of the barriers to impact mobile banking adoption rate. With the help of field experiments in Bangladesh the study found large differences between female and male migrants who live in Dhaka city and send money to their families. Furthermore, Akhter and Khalily (2020)<sup>57</sup> in their study found that the male household heads are more likely to use MFSs compared to female household heads. The constant increasing gap between registered and active mobile banking customer is also an alarming matter to be considered (Figure: 3). Bala et al. (2021)<sup>58</sup> found responsiveness, efficiency and reliability as the most significant factors that determine the level of satisfaction among mobile banking clients during the pandemic lockdown. Islam and Salma (2016)<sup>28</sup> found the low level of trustworthiness of mobile banking among the rural people as great barriers towards mobile banking in Bangladesh. Himel et al. (2021)<sup>30</sup> also revealed that currently there is a lack of security in mobile banking transactions in Bangladesh. Apparently, there is no solution that guarantees the full protection of mobile transactions from being hacked by the hacker. Furthermore, in terms of Smartphone use, Bangladesh is yet to reach the same position as achieved by most of its South Asian peer countries. In Bangladesh, only 41 percent of mobile phone users possess Smartphone as compared to that of India with 69 percent, Sri Lanka with 60 percent, Nepal with 53 percent and Pakistan with 51 percent<sup>59</sup>. Due to the issues like low level of Smartphone users along with illiteracy and low level of digital skills, and poor mobile signal may make the app-based mobile banking transactions inoperative and unsuccessful in Bangladesh. The payment limitations and the restriction on international transactions by some commercial banks are also responsible for creating obstacles to the financial inclusion through mobile banking.

## **V. Conclusions And Recommendations**

Although the mobile based digital financial services were launched in Bangladesh in 2011, it has gained its true popularity in the recent past, especially during the Covid-19 lockdown period. This indicates that mobile banking has not received proper attention till April, 2020. All the findings of this study have revealed that there was a significant relationship between Covid-19 initiatives for the easy, prompt, wider accessibility of mobile banking and the acceleration of financial inclusion in Bangladesh. Although these initial trends started due to the peoples' extra precaution for hygiene lifestyle in the pandemic, the afterward increasing demand for mobile monetary transaction during the new-normal situations indicates about the growing positive attitudes of the general people towards MFSs. Because of the changing habits and different supportive governmental decisions mobile banking sector of Bangladesh has witnessed a drastic change in the transactions like: cash-in, cash-out, P2P, remittance, salary distribution, mobile recharge, utility bill payment and which ultimately resulted in 103 percent enhancement of total mobile banking transaction from 2018 to 2021 (Figure: 6). The future of the financial inclusion through mobile banking however, is not free from the challenges like: lack of security and trustworthiness, lack of acceptability, lack of basic financial literacy, high transaction cost, lack of ease of use, poor mobile connection<sup>28,30,35,54,56,57,58,60</sup>. Therefore, several pragmatic programs can be deployed to keep the current momentum going as well as to achieve the ultimate objectives of expanding financial inclusion through mobile banking in particular and transforming into the digital Bangladesh in general.



Himel et al. (2021)<sup>30</sup> observed a positive attitude of the mobile banking clients if the various activities and functions of the mobile banking can be kept simple. Considering the ease of using apps, the mobile banking app should be made in a user-friendly manner. Instead of providing pin code at every time of entering into the app, a biometric system such as finger impression or face impression can be used. Himel et al. (2021)<sup>30</sup> supported this system as it can speed up the login process. Training and motivation can be provided to accelerate the participation of both male and female customers. In this connection, the adoption of MFSs in both male and female cases has been increased positively after providing them certain training<sup>56</sup>. An upgraded regulatory framework and policy for mobile banking should be implemented to address the hacking, fraudulent and trust issues. Akhter and Khalily (2017)<sup>57</sup> signified the necessities of mobile money and a regulatory framework to expand the horizon of financial inclusion in Bangladesh. Since the number of Smartphone users in Bangladesh is still low, the traditional SMS based MFSs can be promoted extensively to broaden the horizon of financial inclusion. Government should start providing convenient and low-cost mobile banking access to all. Khatun, Mitra & Sarker, (2021)<sup>25</sup> supported this approach as a means of creating a cashless society in Bangladesh. Among the 170 millions of mobile phone subscribers, 54 percent are unique subscribers<sup>59</sup>. In this context, the inactive mobile phone subscribers should be targeted to increase penetration of the mobile banking market. A report shows that the majority i.e. 47 percent of mobile internet users in this country use 2G connection as compared to 25 percent of 3G users<sup>59</sup>. In terms of reducing the gap between registered and active mobile customers number, the level of dependency and usefulness of mobile banking can be increased. The employee's salary payment through mobile banking can be made mandatory to increase the active users<sup>59</sup>. Furthermore, initiating an alternative option for paying the tuition fees of all levels of education could be another best solution to increase the dependency on mobile banking and to reduce the user's gap. In order to address the mobile network connection problem the coverage for 3G and 4G should be increased. The MFSs authority and the mobile network operators can jointly promote budget friendly Smartphone along with a very simple and secured mobile banking app to capture the financially excluded marginalized section of the population to increase the level of financial inclusion as well as the socio-economic development of Bangladesh.

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