



An Empirical Study on Impact of COVID-19 on Mobile Financial Service and Saving Practices: The Case of Bangladesh

Anika Nawar Fagun^{1,*}, Sauda Afrin Anny², Md. Mizanur Rahman Sarker³

¹Department of Agribusiness and Marketing, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh

²Department of Agribusiness and Marketing, Faculty of Agribusiness Management, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh

³Department of Agricultural Statistics, Faculty of Agribusiness Management, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh

Email address:

anikafagun95@gmail.com (A. N. Fagun)

*Corresponding author

To cite this article:

Anika Nawar Fagun, Sauda Afrin Anny, Md. Mizanur Rahman Sarker. An Empirical Study on Impact of COVID-19 on Mobile Financial Service and Saving Practices: The Case of Bangladesh. *International Journal of Economic Behavior and Organization*.

Vol. 10, No. 1, 2022, pp. 17-28. doi: 10.11648/j.ijebo.20221001.13

Received: January 4, 2022; **Accepted:** February 3, 2022; **Published:** February 16, 2022

Abstract: The world is passing a grievous phase because of a fast-spreading disease named COVID-19. Almost all countries have experienced the impact of coronavirus on their economy. Unexpectedly, due to that situation some industries like retail chain shops, online grocery shops, Mobile financial service, IT firms are experiencing growth in Bangladesh. Mobile financial service is relatively new concept but a fast-growing industry in our country. But there are some issues that MFS users face, especially rural people. History of economics shows that countries that succeeded in accumulating high levels of domestic investment largely financed by domestic savings, achieved faster rates of economic growth and development. So, understanding peoples saving behaviour is crucial. Therefore, this paper focused on finding the impact of COVID-19 on saving practice of mobile financial service users of rural area as economic growth and development depend on a country's level of domestic savings. To fully understand the situation the researchers aimed to find the answers to some key questions: (1) Did mobile financial service reach to rural people in this pandemic? (2) Did saving rate increased during pandemic? (3) What is the impact of mobile financial service on saving behavior of people? (4) What are the key determinants of saving practices of mobile banking users? Both descriptive and advanced statistical analysis has been used for analyzing the data and a cross sectional survey on user of mobile financial services has been performed. The study area was three subdistricts (Phulbaria, Nandail, Gouripur) of Mymensingh district in Bangladesh. A two-stage sampling technique was used for data collection. First three villages were chosen from the three selected sub-districts. Then, convenient villages were surveyed for collecting information through primary survey. Simple random sampling method has been used in selecting sample and collecting data from the respondent. A total of 210 users was interviewed from the selected areas. Statistical package SPSS was used for data analysis. Researchers found that mobile financial service industry has significantly grown during pandemic but the saving practices of rural people have decreased. Age, occupation, regularity of income, average monthly family income, saving habit, monthly income during pandemic are the significant factors of the saving practices of mobile banking users. The government should encourage rural residents to save more in formal than informal channel and should emphasis on Mobile Financial Service industry as it can be the answer to the economic problem.

Keywords: Saving Behavior, Mobile Financial Service, COVID-19

1. Introduction and Background

The world is passing a grievous phase because of a fast-spreading disease named COVID-19. It has already spread over 216 countries all over the world and still continuing. Almost all countries have experienced the impact of coronavirus on their economy. In a recent study by Baldwin & Mauro (2020), showed that coronavirus outbreak situation causes the economic downfall of countries like G-7 who have 65% of joint share in world's manufacturing units further there has been 60% of a falling rate of world's demand and supply, and 41% of world exports have been badly affected by this outbreak [5]. Asian Development Bank (ADB) estimates that the world can lose 0.089 percent to 0.404 percent of its GDP due to the outbreak, which is between USD 77 Billion and USD 347 Billion in monetary terms.

World Health Organization (WHO) defined COVID-19 as "the infectious disease caused by the coronavirus, SARS-CoV-2, which is a respiratory pathogen". WHO first learned of this new virus from cases in Wuhan, People's Republic of China on 31 December, 2019. Four months later on 11 March 2020, WHO declared the coronavirus outbreak a pandemic, after it spread over several countries affecting a large number of people [33]. As per the global tally kept by the Worldometer, until December 26, 2021, the virus has already killed 5,413,682 people and approximately 279,851,295 cases have been confirmed [34]. In Bangladesh, the first case was detected on March 08, 2020. After one week, the government initiated countrywide lockdown intending to mitigate the spread possibilities. Moreover, on the 24th of March 2020, eventually, the government declared holiday along with the shut-down of all educational institutions, business enterprises, factories, shopping malls, and only necessary goods suppliers shop allowed to open for a stipulated time. The lockdown was further extended several times by the Government. As of December 26, 2021, Bangladesh confirmed case 1.58M people and 28k death. She is the top 26th country in the world and third most affected country in South Asia, after India. A study of Sarker and Fagun (2021) showed that day laborer, marginal and poor people, vulnerable women and children were mostly affected by this pandemic in Bangladesh [16].

The first vaccinations were given on 27 January 2021 in Bangladesh. Mostly partial lockdown situation was existing in the country. Only educational institutions were closed and mass public gathering was prohibited. Continuing full lockdown situation was impossible for Bangladesh because of its economic condition. As a South Asian country, regional poverty, natural disaster, law and order crisis and high unemployment are persistent issues in Bangladesh which leads to migration flow to other regions of the world [35]. Bangladesh has more than 50 million workers in the informal sector [28]. Bangladesh boasts of some convincing progress with economic development, like increasing per capita income, poverty alleviation and so on [19]. It also represents one of the few countries in developing world where the pace

of fertility decline has been unparalleled over the last few decades despite pervasive poverty and under-development [39]. Still problems like Arsenicosis, population are tenacious. Adverse human health effects along with widespread social and psychological problems caused by arsenic contaminated drinking water in Bangladesh may be the biggest arsenic calamity in the world [38]. This health issue also affected by households' knowledge about arsenic threats from their drinking water [37]. In 2021, Bangladesh's GDP growth rate is 5.47%. Bangladesh recorded its lowest GDP growth rate ever in 2020 which is 3.51%. The economic crisis that the pandemic has caused will outlive it and last for several years, may even last for a decade or more. A report published by the International Labor Organization (ILO) on May, 2020 concluded that the economic effect of the pandemic was delivering a 'triple shock' to young people by destroying their jobs, disrupting their education and training and creating obstacles to seek or move between job [17]. However, according to the ADB, Bangladesh's GDP expected to grow by 7.2% in 2022.

Unexpectedly, due to that situation importance of digitalization has noticeably increased; people are being dependent on various social media and digital communication apps for education, work and social belongingness. Telecommunication and digital media sectors are contributing to build awareness about Coronavirus among people. Due to the economic impact, Bangladesh is undergoing a social transition [36]. Industries like retail chain shops, online grocery shops, Mobile Financial Service, IT Firms are experiencing growth in Bangladesh [26]. E-commerce is relatively new to this country as most of the people did not have access to internet and was not familiar with online shopping. So, they were not comfortable to shop online and trust issues were high. But this pandemic situation showed us unpredicted side, at the initial stage of lockdown people saw a frenzy of panic buying and stockpiling of essential products as they tried to avoid going to crowded places. But prolonged lockdown situation eventually led to online shopping as household food stock was not sufficient for long time. Although, people bought from online, the transaction process remains risky because the virus can spread through droplets from infected person. An article of TIME magazine revealed that previous studies have claimed, paper money can carry more germs than a household toilet [32]. This directly points towards the risk of being infected by using banknotes and coins in financial transactions. This risk led to growth of Mobile Financial Service industry. Payment through Mobile Financial services reduce contact with the delivery personnel through cash and reduced risk. It also provided financial aids and helped in payment of utility bills such as electricity, telephone and such. According to a report of Daily Star, electricity bills paid through digital platforms has increased from 5 percent to 60 percent during the pandemic. Recently, to aid the lockdown situation the Prime Minister announced BDT 2,500 cash incentive to 5 million poor families as part of measures taken to keep the

economy stable. All of these will be paid out using Mobile Financial Service services directly to the families to ensure transparency [18].

Mobile Financial Service (MFS) commonly known as “Mobile Banking” in Bangladesh is relatively new concept but a fast-growing industry in our country. Mobile financial service refers to branchless banking whereby financial services are offered to both banked and unbanked people efficiently under reasonable charge-rates [27]. It offers advanced-level financial services combining traditional banking system with the wireless telecommunication technology to assure instant and secured money transaction process. The agents of respective banks enable these services after registering the mobile account and account owner can withdraw cash, send or receive money without visiting any bank through independent agent locations.

The first Mobile financial service was introduced in 2011 and from then it has grown rapidly and gained popularity among users. In less than four years there were more than 10 service providers in Bangladesh. A study found that despite having a very clear mobile financial service market leader, competition is growing quickly [15]. However, the central bank of Bangladesh has allowed 16 leading banks to offer Mobile Financial Service till now [27]. According to Bangladesh Bank’s MFS comparative summary statement currently 15 banks are providing the service. Bangladesh’s mobile market is also relatively under-developed, though it has experienced strong growth over the last six years. The incentives both from government and public sectors have helped the industry grow and it is now one of the biggest industries in Bangladesh. As a populous country, its huge market has attracted many foreign investors. Mobile money technologies make sending money quick and relatively cheap (Gates Foundation, 2013), but their social and economic impacts have been hard to evaluate since, especially in early stages, adoption is highly self-selected.

Bangladesh had 971,000 MFS agents who, on average, conducted 7.33 million daily transactions worth USD 156 million. It has a total of 11,320 agent banking outlets that serve 5.26 million customers until December, 2019. In addition, nearly 92% of the population now live within 5km of a financial sector access point [2]. An article published on “Fortune” revealed that the world’s fourth-largest economy, China, already has 600 million users, moving it very close to a cashless economy [31]. The COVID-19 outbreak is urging the world to follow suit with China and reduce the usage of cash. The leading MFS providers of Bangladesh are bKash, Rocket, SureCash, Nagad etc. Among them the spectacularly successful provider is bKash which is backed up by BRAC Bank. bKash started their MFS program in 2011 and by 2019 it had 3.1 crore active users. With some 180,000 agents countrywide effectively acting as bank branches to facilitate their user base, bKash is holding above 80 percent share of the total MFS market in Bangladesh. Up to July 2019, more than TK 37,477.35 crore has been transacted through bKash MFS [27].

Saving is one of the important variables for economic development for any country and it is crucial for developing

countries. The greater is the saving rate, the higher is the growth rate a country can attain. To understand a country’s economy, understanding the saving practices of the people is a must. Saving practices of developing country rely mainly on informal sector like saving in livestock or jewels, saving at home “under a mattress”, saving with a neighbor etc. [1]. A study showed that, it is difficult to find any correlation between using mobile money and saving practices for predictable events, but it seems to increase the propensity of individuals to save for health emergencies [29].

History of economics shows that countries that succeeded in accumulating high levels of domestic investment largely financed by domestic savings, achieved faster rates of economic growth and development. According to Mujeri et al. (2013) One significant feature of the trends in savings and investment rates in Bangladesh is that the country’s economic growth has been financed predominantly by domestic savings. The dependence on foreign savings (equivalently, on current account deficit) has been rather modest [20]. Different commercial banks, post office and other financial institutions collect a greater portion of private savings through their activities [19]. According to Ministry of Finance of Bangladesh, personal Savings in Bangladesh increased to 6067.90 BDT Billion in 2019 from 5138.92 BDT Billion in 2018. Bangladesh Bureau of Statistics recently estimated and found that gross saving rate has also increased which is a positive thing for Bangladesh. Gross savings rate was measured at 30.1% in Jun 2020, compared with 29.5% in the previous year. The data reached an all-time high of 30.8% in Jun 2016 and a record low of 27.4% in Jun 2018. The June 2019 data is provisional estimates only [6].

Several studies were conducted to find out the impact of COVID-19 on economy and growing industries. This study aims to extend the studies, focusing on mobile financial service industry in Bangladesh and saving behaviour of rural people during COVID-19.

Hence, this study is approaching to identify the factors affecting MFS users and saving practices of rural people in this pandemic. To fully understand the situation of coronavirus the researchers aim to find the answers to some key questions: (1) Did mobile financial service reach to rural people in this pandemic? (2) Did saving rate increased during pandemic? (3) What is the impact of mobile financial service on saving behavior of people? (4) What are the key determinants of saving practices of mobile banking users?

2. Literature Review

Mobile Financial Service is very effective in a country that is geographically challenged like Bangladesh, Kenya, and Nigeria [23]. Although it is on blooming stage in Bangladesh, Banks and MNOs share the view that the potential for MFS lies initially with P2P, small merchant payments and mobile top ups [24]. But, in a recent study Akhter and Khalily (2020) found that individuals engaged in the non-agriculture sector,

those from households with the head having higher education, those from non-poor households and those from urban areas have higher probabilities of MFS use [25]. Again, a study of Lee et al. (2018) showed that in context of Bangladesh, very poor rural households whose family members had migrated to the city and are active mobile money users [14]. Rural households borrowed less, saved more, and consumed more in the lean season. Which means it is getting popular among individuals and users have positive attitude towards mobile financial services and the reasons behind that it makes their life easy and also for convenience, trust, security, risk reduction, availability of agent points, swiftness, coverage etc. [3, 23]. Agur et al. (2020) found that digital financial services allow for social distancing; they allow governments to disburse funds to those in need quickly and effectively; and allow many households and firms to rapidly access online payments and financing [13].

Still there are some issues that MFS users face. Mainly rural people face problems using the service as they have limited access to information technology and that leads to limited trust on technology, medium of communication is English which is really inconvenient for ignorant people. [23]. Shahneaz et al. (2017) made an important contribution through a study which identified certain issues MFS industry face in Bangladesh which are Mobile handset operability, Security/privacy, Standardization of service, Customization, Downloading and installing application software, Telecom service quality [21].

In a study Frączek et al. (2019) showed that the quality of saving behavior is attributed to incomes and the level of own knowledge and financial skills as well as individual traits of particular financial consumers [9]. Ahsan (2016) has found five core factors for peoples saving behavior, i.e., 1. Have a facility in old age, 2. Have enough social security, 3. Purchase land/house, 4. Dependent persons, and 5. Good profit/interest [4]. There are several factors that affect rural people's saving behavior also. It is revealed in a study that rural poor individuals can save if they are provided with customized trainings, appropriate financial products like credit availability as per their need and in addition, their income level and education status have an effect on their saving level. [11].

A study of Rahman and Uddin (2012) showed the relationship between bank and saving practices, "Increased availability of branches of banks can stimulate the saving tendency of people". But relation between mobile Financial Service and saving practices is a topic of controversy. In a study Ky, Rugemintwari and Sauviat (2017) showed that it is not possible to detect any correlation between using mobile money and saving for predictable events, it seems to increase the propensity of individuals to save for health emergencies [29]. Then again, in another study Ahmed el al. (2011) showed that Mobile Financial Service is much more effective in developing savings habits [30]. Nandhi (2012) found that in India, the ability to save has improved for a majority of users through EKO mobile banking by comparison to earlier practices such as keeping cash on hand [22].

Above reviewed studies cover MFS industry's potential in Bangladesh and the saving behavior of Bangladesh's people. Studies aiming to find out the factors affecting MFS users and saving practices of rural people in this pandemic are possibly a few in the country. Therefore, this paper intends to highlight the overall situation of saving behavior and MFS industry during pandemic.

3. Objectives

The specific objectives of this study are:

1. To find out the socio-economic condition of mobile financial service users of rural areas.
2. To observe the influences behind saving practices of rural people.
3. To determine the factors impacting saving practices of rural during COVID-19.
4. To figure out the situation of using MFS during COVID-19 of rural people.

4. Methodology

4.1. Study Areas

The study was conducted in three Upazilas of Mymensingh district in Bangladesh namely Phulbaria, Nandail, Gouripur. The Mymensingh is the largest district of Bangladesh with an area of 4,363 km² and a population of 58,00,159 as of the 2020 census. It is ethnically, culturally, and topographically diverse region and has 13 subdistricts. It was created in 2015. The literacy rate of the district is 68%. The majority of the population relies on subsistence farming and a small portion of population relies on Small and Medium Enterprises [7].

4.2. Study Type and Study Population

In the study a cross sectional survey on user of mobile financial services was performed to determine the factors impacting saving practices of rural during COVID-19 and also to figure out the situation of using MFS during COVID-19 of rural people. Rural people of the three areas Phulbaria, Nandail and Gouripur were the study population. To accomplish the objectives of the study, a structured questionnaire was formed.

4.3. Sampling Design

To select a representative sample, a four-stage sampling was done for data collection. First of all, Mymensingh district was selected purposively. Secondly, selection of three Upazila from the district was done. Then, one village from each Upazila was selected randomly. Thus, a total of 3 villages were selected. The villages were Chorpara, Musulli, Tareghat. Finally, from each villages users of MFS were selected randomly using simple random sampling method for face-to-face interview.

4.4. Sample Size and Technique

Simple random sampling method was followed in selecting sample and collecting data from the respondent. From each village, 70 users were selected randomly for face to face interview. Thus, a total of 210 users were being interviewed from the selected areas of three Upazila. Both qualitative and quantitative information was collected through questionnaire. At every stage of the selection of respondents, priority was given on the objectives of the study.

4.5. Preparation of the Questionnaire and Collection of Data

For the purposes of this research, a structured questionnaires were used. The final survey questionnaire was prepared on the basis of results of the pre-test survey. The nature of variables and types of respondents requires both qualitative and quantitative procedures of data collection. Two sources of data were used- primary and secondary data. Primary data was collected by interviewing the selected respondents. Data collection period was 3 months. After collection, data was properly edited and analyzed. Secondary data was collected from Bangladesh Bureau of Statistics (BBS), books, journals, newspapers, articles, internet etc.

4.6. Analytical Techniques

Both descriptive and advanced statistical analysis was used

$$\ln [P(Y=1)/(1-P(Y=1))] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \dots + \beta_i X_i + U_i$$

Where, Y_i = Saving during pandemic (if saved= 1; otherwise = 0),

X_1 = Age

X_2 = Gender

X_3 = Occupation

X_4 = Regularity of income

X_5 = Monthly family income

X_6 = Monthly income during pandemic

X_7 = Land

X_8 = Work during pandemic

X_9 = Saving habit

U_i = Disturbance term

β_1 to β_9 are coefficients of the respective explanatory variables.

Coefficients ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \dots, \beta_i$)

for analyzing the data.

4.6.1. Descriptive Analysis

Tabular and graphical analysis was being used to find out socio-demographic profile of the respondents, observe the influences behind saving practices of rural people and to figure out the situation of using MFS during COVID-19 of rural people. The tabular technique of analysis was used to determine the age, literacy rate, gender and occupation of the user of MFS. It is simple in calculation, widely used and easy to understand. It was used to get the simple measures like average, percentage and frequency.

4.6.2. Advanced Statistical Analysis

Advanced statistical model was used to achieve the objectives of the study such as Logit model. Logistic regression is used to describe data and to explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval or ratio-level independent variables and to get the probability of certain outcome (yes/no) for different categories of independent variable. So, in this study binary logistic regression analysis was being used. The dependent variable of this model was saving during pandemic. In this study to determine the contribution of the important variables to save during pandemic of rural people, the logit of the logistic regression function can be written as

and intercept (β_0) was estimated using the maximum-likelihood method. Odds Ratio (OR) was reported with 95% confidence interval. Statistical packages SPSS was used for data analysis.

4.7. Practical Consideration

A general disadvantage of the questionnaires however is their fixed and strict format, which eliminates the possibility for more in-depth or abstract observation [8]. This study was not an exception. Moreover, due to pandemic the transportation facility might was disturbed. In addition to that, people from rural areas were not so expressive when it comes to questionnaire and personal information. Data might not be exactly accurate due to imprecise information.

Table 1. Demographic status.

Characteristics	Minimum	Maximum	Mean	Std. Deviation
Age	15	80	37.8	12.06
Number of family member	1	12	4.41	1.65
Total dependent on family head (Person)	0	9	3.12	1.32
Size of the land holding (acre)	0.017	0.33	0.133	0.13
Monthly income (BDT)	1000	30000	14690.48	6252.9
Monthly saving amount (BDT)	300	6000	2112.24	1537.32
Monthly expense (BDT)	1000	30000	12742.86	5692.52

Source: Field survey, 2021

*1 USD= 85.20 BDT.

5. Result and Discussion

5.1. Socio-economic Condition of MFS Users of Rural Area

5.1.1. Demographic Condition

The respondents of the study were the user of Mobile Financial Service of rural areas. Among 210 respondents 61.9% (130) were male. Around 80.5% (169) were married, 11.9% (25) were unmarried, 6.2% (13) were widowed and 1.4% (3) were divorced. Most of the family's head were male (92.4%). Average number of family member was 4 and total dependent on family head was 3 ranging from 0 to 9 member. Average age of the respondents were 37 years with minimum age of 15 and maximum 80 years. Average Monthly income of the respondents was 14690 taka and average expense 12742 taka. Around 48.6% of respondents own a land and average size of the land holdings were 0.13 acre (7.87 katha). Minimum and maximum land holding were respectively 0.017 acre (1 Katha) and 0.330 acre (19.97 Katha).

5.1.2. Education

Education level of the family head is important as educated people tend to be more cautious in saving. From the table 2 we can see that illiteracy rate of the people of the study area was 18.6% while the illiteracy rate of the Mymensingh district is 60.9% [7]. Most of the MFS users completed only primary level and the percentage was 29% in the study area. Around 27% completed the secondary level and 10% completed the higher secondary level. About 10.5% of the respondents were graduates and 4.3% were post graduated user. The findings however, does not reveal the general situation of rural areas of Bangladesh possibly because of randomly selection of the respondents in the study area under review.

Table 2. Education of the respondents.

Education level	Frequency	Percent
Illiterate	39	18.6
Primary	61	29
Secondary	58	27.6
Higher secondary	21	10
Graduate	22	10.5
Post graduate	9	4.3

Source: Field survey, 2021.

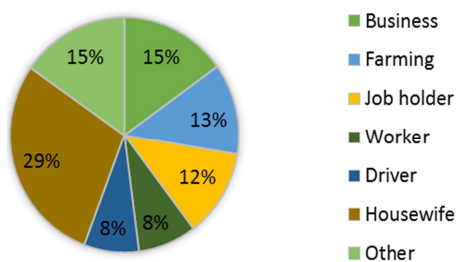


Figure 1. Occupation of the MFS users.

5.1.3. Occupation

Common occupations of the respondents were business

(14.8%) and farming (12.4%). There were also respondents who were driver (7.6%), worker (8.1%) and job holder (11.9%). Other occupations were teaching, bus staff, NGO and garment worker. Around 28.6% MFS users were housewife and their spouse or elder child were the income source for the family. About 26.2% MFS users' spouse were active income earner, most of them (5.7%) were businessmen.

If we look at the table 3, we can see that among family heads, the farmers and drivers (auto, van, truck) were comparatively more illiterate than all other occupations in the study area. Percentages of illiteracy were 30.8 for farmers, 25 percent driver and 17.6 percent worker in the study area during study period. The 8 percent illiterate job holder were working in saloon or as shopkeeper and they had no academic education. Drivers and workers highest level of education were secondary level. About 25% Driver and 29.4% worker completed secondary education. Farmers highest level was graduation. Only 12% Job holders, 3.2% businessmen and 8.6% other occupation (teacher, NGO worker) completed higher study among MFS users. Illiteracy rate was 6.5% among Businessmen which is lowest among all other occupations. About 16.1% businessmen completed primary level, 45.2% completed secondary and 19.4% completed higher secondary level of education. The percentage of graduates were 9.7 and post graduates were 3.2%.

Table 3. Occupation wise distribution of education level of the family head.

Occupation	Education level of family head (percent)			
	Illiterate	Primary	Secondary	Higher secondary
Business	6.5	16.1	45.2	19.4
Driver	25	50	25	0
Farmer	30.8	34.6	23.1	7.7
Job	8	16	24	16
Worker	17.6	52.9	29.4	0
Other	17.1	28.6	14.3	14.3

Source: Field survey, 2021.

Among land owners 19.6% were Farmers, 19.6% were businessmen, 26.5% were housewife, 10.8% were job holders, 1% were drivers and 16.7% were teacher, bus staff, NGO worker etc.

Table 4. Occupation of land owner.

Occupation	Frequency	Percent
Business	20	19.6
Driver	1	1.0
Farmer	20	19.6
Job	11	10.8
Worker	6	5.9
Housewife	27	26.5
Other	17	16.7

Source: Field survey, 2021.

5.2. Impact of COVID-19 on Saving Practices of Rural People

Binary logistic regression was performed to assess saving practices of rural people during COVID-19. The model

contained nine independent variables (age, gender, occupation, regularity of income, average monthly family income, land, saving habit, monthly income during pandemic, work during pandemic). The full model containing all predictors was statistically significant, $\chi^2 (16, N = 210) = 134.04$, $p < .001$, indicating that the model was able to distinguish between respondents who saved and did not save during COVID-19. The model as a whole explained between 47.7% (Cox and Snell R square) and 67.5% (Nagelkerke R squared) of the variance in saving during pandemic, and correctly classified 87.9% of cases.

As shown in Table 5, total six of the independent variables made a unique statistically significant contribution to the model (age, occupation, regularity of income, average monthly family income, saving habit, monthly income during pandemic). The strongest predictor of saving during pandemic was monthly income during pandemic whose income was between 21000-30000 BDT, recording an odds ratio of 14.82. This indicated that respondent whose income was between 21000-30000 BDT they were over 14 times more likely to save during pandemic than those whose income was between 0-10000 BDT, controlling for all other

factors in the model. The odds ratio of 8.73 means that 11000-20000 BDT monthly income earners during pandemic were more than 8 times more likely to save during pandemic than 0-10000 BDT income earners, controlling for other factors in the model. This result consistent with a study of Horioka & Terada-Hagiwara (2012) in which they argued that income level is the determinants of savings in Asia [12].

Age is the predictor with significance level of .031 and .49 odds ratio. Which means that with the increase of age, respondents were less likely to save during pandemic. Occupation is another predictor. From the table we can see that job holders are .21 times less likely to save than businessmen. Regularity of income .15 odds ratio which is less than 1 means respondents who had irregular income were .15 times less likely to save during pandemic than those who had regular income. Odds ratio .14 indicates that respondents with average family income between 11000-20000 BDT were .14 times more likely to save than those with income between 0-1000 BDT. Respondent who had saving habit even before pandemic were .020 times more likely to save during pandemic than those who had no saving habit.

Table 5. Determinants of saving practices of rural people during pandemic.

Variable	B	Sig.	Exp (B)
Age	-.718	.031*	.488
Gender	-.317	.727	.728
Occupation			
Business		.057	
Driver	.889	.412	2.432
Farmer	.413	.656	1.511
Job	-1.533	.050	.216
Worker	-20.122	.998	.000
Housewife	1.785	.181	5.962
Other	-1.269	.195	.281
Regularity of income	-1.881	.004*	.154
Monthly income before pandemic			
0- 1000 BDT		.040*	
11000-20000 BDT	-1.907	.011	.149
21000-30000 BDT	-1.976	.082	.139
Monthly Income During Pandemic			
0-10000		.010*	
11000-20000	2.167	.003	8.73
21000-30000	2.696	.040	14.81
Land	-.691	.179	.501
Work during pandemic	-.049	.940	.952
Saving habit	-3.898	.000*	.020
Constant	7.302	.000	1483.84
Age, Gender, occupation, Regularity of income, Monthly income before pandemic, Monthly Income During Pandemic, Land, Work during pandemic, Saving habit.			

Source: Field survey, 2021.

5.3. Factors Behind Rural Peoples Saving Behaviour

From the data we found that it is not common for rural people to save. Around 48.1% respondent had saving habit which is total 101 among 210 respondents. 54.5% of them had regular saving habit. Saving frequency of the people who saved were monthly saver 79.6% and weekly saver 20.4%. Saving proportion also varied, 21.9% of the respondents

saved equal amount and 25.7% MFS users saving amount varied depending on situation.

This study is compatible with the findings of Fraczek (2011) that the level of savings depends on various factors such as income, interest rates, fiscal factors and demographics factors [10]. About 43.8% respondents had regular income which had influence on saving habit. The percentage of save of regular income earners was more than irregular income earner. 65.2% regular income earners had saving habit compared to 34.8% of

the irregular income earners. As for the reason of not saving of the irregular income earners, the common answer was unstable income. Around 34.7% of the respondents did not save money

despite their income being regular and the reasons for not saving were; insufficient earning and some of them were simply not interested to save.

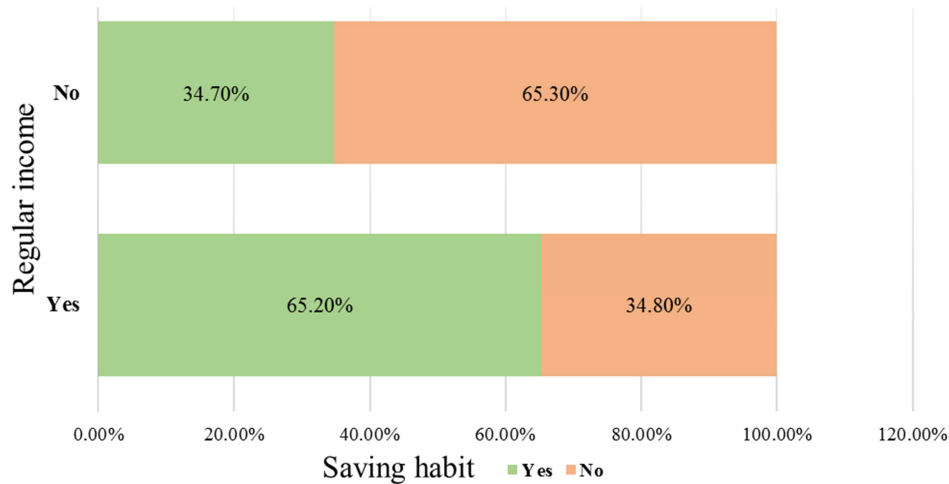


Figure 2. Saving habit in accordance to regularity of income.

Income amount has also influence on saving habit. 32.2% among the respondents whose income were between 0-10000 BDT had saving habit. The percentage of saver increased as income increased. 50% of the respondent whose family income were between 11000-20000 BDT saved a portion of their income. Highest percentage was 72.4% and their income were between 21000-30000 BDT. Their monthly saving amount also vary according to income. 0-10000 income earners average monthly saving amount 1500 BDT, 11000-20000 earners average monthly saving amount 2017 BDT and 21000-30000 earners average monthly saving amount 3404 BDT.

Table 6. Family income wise saving habit and saving amount.

Family income	Saving habit (%)	Average monthly saving amount
0-10000	32.2	1500
11000-20000	50.0	2017.24
21000-30000	72.4	3404.76

Source: Field survey, 2021.

Table 7. Debt and saving habit.

Debt	Saving habit		No (%)	Frequency
	Yes (%)	Frequency		
Yes	32.4	33	67.6	69
No	63.0	68	37.0	40

Source: Field survey, 2021.

Table 8. Occupation wise saving habit, Channel of save and saving pattern.

Occupation	Saving habit	Channel of Save			Saving Pattern	
	Percent	Bank (%)	MFS (%)	Other (%)	Regular (%)	Irregular (%)
Business	25.7	65.4	0	34.6	53.8	46.2
Driver	5.0	0	0	100	60	40
Farmer	14.9	20	6.7	73.3	33.3	66.7
Job	16.8	64.7	0	35.3	52.9	47.1
Worker	5.9	33.3	0	66.7	33.3	66.7
Housewife	20.8	57.1	0	42.9	81	19
Other	10.9	63.6	9.1	27.3	45.5	54.5

Source: Field survey, 2021.

Among respondents, 55.2% considered that Mobile Financial Service charge is high. From the table 9, we can also see that only people under age 30 use MFS as saving channel (6.7%) and 55.9% among them considered the service charge is high. Respondents above 30 years of age use other channel like NGO or personal saving at home and most of them also think that the service charge is high.

Table 9. Age wise saving channel of respondents.

Age	Channel of save			Service charge high	
	MFS (%)	Bank (%)	Other (%)	Yes (%)	No (%)
16-30	6.7	63.3	30	55.9	44.1
31-45	0	48.9	51.1	57.6	42.4
46-60	0	45	55	56.1	43.9
above 60	0	25	75		

Source: Field survey, 2021.

Table 10. Reasons for saving of MFS users.

Reason for saving	Frequency	Percent
Emergency situation	71	70.3
Future use	70	69.3
Marriage	17	16.8
Education	40	39.6
Multiple reason	73	72.3

Source: Field survey, 2021.

The MFS users' main reason for saving was to handle any kind of emergency situation (70.3%) like health emergency, food emergency, accidents etc. About 69.3%

respondent saved for future use, 39.6% respondent saved for education of the family member (children, siblings etc.) and 16.8% people saved for marriage of their children. Around 73.3% respondents chose multiple reason among which emergency situation and future use were common.

5.4. Rural People Situation of Using MFS During COVID-19

Mobile Financial Service has reached more rural people recently. As for the reason of using MFS 45.7% (96) respondents stated that it is easy and convenient, 80.5% (169) responded that it is easy to withdraw money and only 1.9% (4) stated that it was safe for saving. People frequently used options like send money (19.5%), cash out (96.2%), bill pay (0.5%), save money (0.5%) and transfer money (14.8%). Around 25.2% respondent believed that using MFS helped them to avoid unnecessary spending, 19.5% of them could not avoid unnecessary spending and 55.2% respondent were not sure about it. About 99% respondent stated that they can find cash out point near them and 10.5% faced difficulty in operating MFS.

From the figure 3, we can see that 59% people started using mobile financial service from 2 years ago to most recent 1 week ago. Which indicates that during COVID-19 more people started using mobile financial service. Around 31.4% people started using MFS 3-5 years ago, 6-8 years ago 8.1% respondents started using it and 1.4% respondents had been using MFS more than 8 years.

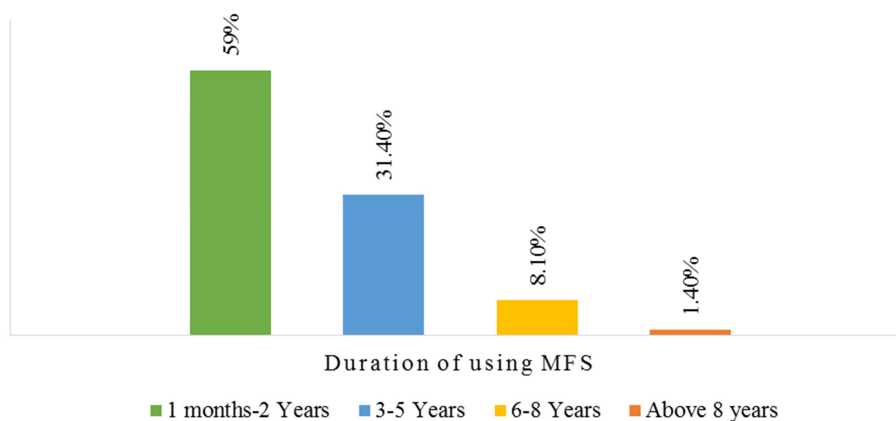


Figure 3. Duration of using MFS.

Bangladesh government granted incentive for rural poor people during pandemic. Among the respondent 59.5% knew about the incentive. From the table we can see that, 64% of the Duration of using respondents who knew about the incentive started using MFS during COVID-19 (0-2 y). So, it can be said

that govt. incentive had influence on MFS industry as it gained more customer and could reach rural people more. Around 26.4% respondent started using it 3-5 years ago, 7.2% respondent started 6-8 years ago and 2.4% of the people with incentive information are the user for more than 8 years.

Table 11. Duration of using MFS and government incentive information.

Government incentive information		Duration of using MFS (percentage)			
	Percent	0-2 years	3-5 years	6-8 years	Above 8 years
Yes	59.5	64.0	26.4	7.2	2.4
No	40.5	51.8	38.8	9.4	0

Source: Field survey, 2021.

A down side of MFS is that respondents still not comfortable to save using MFS. As we can see from the table 12, only 2% respondent saved using MFS and 46.5% respondent saved informally (own, NGO). Bank still rule over as safe saving instrument, around 51.5% MFS users still used bank as their channel of save.

Table 12. Channel of save of the participants.

Channel of save	Frequency	Percent
MFS	2	2
Bank	52	51.5
Other	47	46.5

Source: Field survey, 2021.

6. Conclusion and Policy Implication

This paper presents an overall situation of using MFS of rural people, saving behaviour of rural MFS users, factors impacting them and impact of COVID-19 on these factors. Based on the findings achieved through quantitative and qualitative analysis, the study conclusions are drawn. This study shows that age, occupation, regularity of income, average monthly family income, saving habit, monthly income during pandemic has significant impact on saving behaviour of MFS users. With the increase of age, respondents were less likely to save during pandemic. Users who had irregular income were less likely to save during pandemic than those who had regular income. Respondent who had saving habit even before pandemic were more likely to save during pandemic than those who had no saving habit.

Savings is not common among rural people since they are preoccupied with day-to-day life. Regularity of income was the significant influence of saving. The percentage of regular income earners was more than irregular income earner. But some of the respondents did not save money despite their income being regular and the reasons for not saving were; insufficient earning and Government incentive some of them were simply not interested to save. Income amount has also influence on saving habit of MFS users. Respondent with higher income tend to have saving habit. Saving habit and debt of respondent were negatively related. Which means, if one had debt, he/she was less likely to save. Main reasons for saving were to handle any kind of emergency situation like health emergency, food emergency, accidents etc., for future use, for education of the family member (children, siblings etc.) and for marriage of their children. Mobile Financial Service has reached more rural people recently. As for the reason of using MFS, respondents stated that it is easy and convenient, easy to withdraw money and safe for saving. During COVID-19 more people started using mobile financial service and govt. incentive had influence behind it. Rural people could find cash out points easily which is another positive point for MFS industry as it could reach rural people more. But people still did not save using MFS.

On the basis of observation and conclusions drawn from the findings of the study following suggestions are made. The

Mobile Financial Service business should focus on establishing trust with rural people in regards to saving, particularly among the elderly (above 30 years of age). They should hold different events to develop trust. Service charge of mobile financial service companies is high. Because MFS serves a large number of really poor individuals, the operators should review their fees. The government should encourage rural residents to save more in formal than informal channel and should emphasis on Mobile Financial Service industry as it can be the answer to the economic problem.

References

- [1] Allen, F., C. Elena, C. Robert, Q. Jun, S. Lemma and V. Patricio. (2014). "The African Financial Development and Financial Inclusion Gaps". *Journal of African Economies*.
- [2] Tiwari, A. & Islam, J. (2020). "The DFS ecosystem in Bangladesh". *The financial express*.
- [3] Ahmed, R. (2018). "Mobile Financial Services (MFS) in Bangladesh: Measuring Its Consumers' Attitude & Its Role on Buying Decisions of Other Company's Products of the Consumers". Available at SSRN: <https://ssrn.com/abstract=3170571> or <http://dx.doi.org/10.2139/ssrn.3170571>
- [4] Ahsan M. K. (2016). "Why do People have the Saving Behavior? A Reference from Sylhet City". *ABC Journal of Advanced Research*, 5, 77-90. Available online: <http://hdl.handle.net/20.500.11903/jar.v5n2.3>
- [5] Baldwin, R., & Mauro, B. W. di. (2020). *Economics in the Time of COVID-19*.
- [6] Bangladesh Bureau of Statistics (2020). Bangladesh Gross Savings Rate, *CEIC*. Available online: <https://www.ceicdata.com/en/indicator/bangladesh/gross-savings-rate#:~:text=Bangladesh's%20Gross%20Savings%20Rate%20was,an%20average%20rate%20of%2029.2%20%25>.
- [7] Bangladesh National Portal (2021). Mymensingh district. Available online: <http://www.mymensingh.gov.bd/site/page/3012283d-1e86-11e7-8f57-286ed488c766/%E0%A6%8F%E0%A6%95%20%E0%A6%A8%E0%A6%9C%E0%A6%B0%E0%A7%87%20%E0%A6%9C%E0%A7%87%E0%A6%B2%E0%A6%BE>
- [8] Bell, J. (2005). "Doing Your Research Project, Berkshire". *Open University Press/McGraw-Hill Education Bangladesh National Portal*. Available online: <http://www.mymensingh.gov.bd/site/page/3012283d-1e86-11e7-8f57-286ed488c766/%E0%A6%8F%E0%A6%95%20%E0%A6%A8%E0%A6%9C%E0%A6%B0%E0%A7%87%20%E0%A6%9C%E0%A7%87%E0%A6%B2%E0%A6%BE>
- [9] Frączek, B. & Matuła, A. (2019). "Knowledge and Behaviour in the Field of Saving by Young with Asperger Syndrome". *Challenges for Financial Education*. *Future Human Image*. 11.22-31. 10.29202/fhi/11/3.

- [10] Fraczek, B. (2011). "The factors affecting the level of household savings and their influence on economy development", *8th International scientific conference financial management of firms and financial institutions*, Ostrava VŠB-TU Ostrava, Faculty of economics, finance department 6th – 7th September 2011.
- [11] Messele, G. (2015). "Assessment of Factors affecting Saving Practices of Members of Rural Saving and Credit Cooperatives". (The case of Gamo Gofa zone, SNNPRS).
- [12] Horioka, Ch. & Terada-Hagiwara, A. (2012). "The determinants and long-term projections of saving rates in Developing Asia, Japan and the World Economy", 24 (2), pp-128-137.
- [13] Agur, I., Peria, S. M. & Rochon, C. (2020). "Digital Financial Services and the Pandemic: Opportunities and Risks for Emerging and Developing Economies". Research. IMF.
- [14] Lee, N. J., Morduch, J., Ravindran, Shonchoy. A. S. & Zaman, H. (2018). "Poverty and Migration in the Digital Age: Experimental Evidence on Mobile Banking in Bangladesh". *American Economic Journal: Applied Economics*, 13 (1): 38-71.
- [15] Parvez, J., Islam, A. & Woodard, J. (2015). "Mobile Financial Services in Bangladesh: A Survey of Current Services, Regulations, and Usage in Select USAID Projects". *Market Links*, USAID.
- [16] Sarker, M. M. R., Fagun, A. N. (2021). "COVID-19, Food Security, Food Prices and Urban-rural Interrelationship for Sustainable Food and Nutritional Security: A Study on Dhaka City". *International Journal of Agricultural Economics*. Vol. 6, No. 1, 2021, pp. 47-58. doi: 10.11648/j.ijae.20210601.16.
- [17] Mahmood, M. (2020). "COVID-19: Economic challenges facing Bangladesh". *The Financial Express*.
- [18] Islam M. Z. (2020). "Payout of safety net funds through MFS to enhance transparency". *The Daily Star*. Available online: <https://www.thedailystar.net/business/news/payout-safety-net-funds-through-mfs-enhance-transparency-1903234>
- [19] Rahman, M. M. & Uddin, M. T. (2012). "Saving Mobilization and Its Impact on Economic Growth: A Case Study on Bangladesh". *International Journal of Business and Management Studies*. CD-ROM. ISSN: 2158-1479: 1 (3): 239–253.
- [20] Mujeri, M. K. & Chowdhury, T. T. (2013). "Savings and Investment Estimates in Bangladesh: Some Issues and Perspectives in the Context of an Open Economy". Bangladesh Institute of Development Studies.
- [21] Shahneaz, M. A., Amin, M. B. & Chowdhury, A. S. M. (2017). "Challenges of Mobile Banking in Bangladesh: A Study on Dhaka City". *Independent Business Review*. Vol. 9. Number 1 & 2.
- [22] Nandhi, M. A. (2012). "Effects of Mobile Banking on the Savings Practices of Low-Income Users". *The Indian Experience*. IMTFI Working Paper 2012-7.
- [23] Siddiquie, M. R. (2014). "Scopes and threats of Mobile Financial services in Bangladesh". *Journal of Economics and Finance (IOSR-JEF)* e-ISSN: 2321-5933, p-ISSN: 2321-5925. Volume 4, Issue 4. (Jul-Aug. 2014), PP 36-39.
- [24] Nabi, M. T., Saha, M., Sutradhar, P., Rama, Ayesha-E-Fahmida, Chen, C. & Banerjee, S. (2012). "Mobile Financial Services in Bangladesh: An Overview of Market Development". Policy Paper. Bangladesh Bank.
- [25] Akhter, N. & Khalily, M. A. B. (2020). "An Analysis of Mobile Financial Services and Financial Inclusion in Bangladesh". *Indian Journal of Human Development*. Sage Journals.
- [26] Alam, R. (2020). "COVID-19 Impact: Industries Experiencing Growth Due to the Pandemic". *Light castle partner*. Available online: <https://www.lightcastlebd.com/insights/2020/06/17/covid-19-impact-industries-experiencing-growth-due-to-the-pandemic>
- [27] Tabassam, R. (2020). "Fintech Mobile Financial Service: Mobile Wallet for Easy Money Transfer, Payment & Savings in Bangladesh". *United News of Bangladesh (UNB)*. Available online: <https://unb.com.bd/category/Business/fintech-Mobile-Financial-Service-mobile-wallet-for-easy-money-transfer-payment-savings-in-bangladesh/43453>
- [28] Islam, S. T & Divadkar, Y. N. (2020). "How Bangladesh's leaders should respond to the economic threats of COVID-19". *World Economic Forum COVID Action Platform*. Available online: <https://www.weforum.org/agenda/2020/04/covid-19-coronavirus-bangladesh/>
- [29] Ky, S., Rugemintwari, C. & Sauviat, A. (2017). "Does Mobile Money Affect Saving Behavior? Evidence from a Developing Country". *ffhal-01360028v2f*.
- [30] Ahmed, S. M. S., Rayhan, S. J., Islam, M. A. & Mahjabin, S. (2011). "Problems and prospects of mobile banking in Bangladesh". *Journal of Information Engineering and Applications*. ISSN 2224-5758 (print) ISSN 2224-896X (online) Vol 1, No. 6, 2011.
- [31] The World's Fourth-Largest Economy Is Going Cashless. (2019). *Fortune*. Available online: <https://fortune.com/2019/12/04/southeast-asia-mobile-payments-cashless-ksher/>
- [32] Top 10 Things You Didn't Know About Money. (2020). *Time*. Available online: http://content.time.com/time/specials/packages/article/0,28804,1914560_1914558_1914544,00.html
- [33] World Health Organization. (2020). *Coronavirus disease (COVID-19) Q&A*. Available online: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-coronaviruses>
- [34] Worldometer. (2020). *COVID-19 coronavirus pandemic*. Available online: https://www.worldometers.info/coronavirus/?utm_campaign=homeAdvegas1?
- [35] Sarker M. M. R. (2017). "Migration Flows in South Asia". In: Bandyopadhyay S., Torre A., Casaca P., Dentinho T. (eds) *Regional Cooperation in South Asia*. Contemporary South Asian Studies. Springer, Cham. https://doi.org/10.1007/978-3-319-56747-1_4
- [36] Akter, M., Sarker, M. M. R., Nishat, N. I. (2021). "Contextualizing the Impacts of COVID-19 in Bangladesh: An Evidence from Social and Environmental Perspective". *Journal of Health and Environmental Research*. Vol. 7, No. 4, 2021, pp. 198-205. doi: 10.11648/j.jher.20210704.15.

- [37] Sarker, M. M. R. (2012). "Spatial modeling of households' knowledge about arsenic pollution in Bangladesh". *Social Science & Medicine*. Volume 74, Issue 8, 2012. pp. 1232-1239, ISSN 0277-9536, <https://doi.org/10.1016/j.socscimed.2011.11.025>.
- [38] Sarker, M. M. R. (2010). "Determinants of Arsenicosis Patients' Perception and Social Implications of Arsenic Poisoning through Groundwater in Bangladesh". *International Journal of Environmental Research and Public Health*. 2010; 7 (10): 3644-3656. <https://doi.org/10.3390/ijerph7103644>
- [39] Sarker, M. M. R., Nishat, N. I., Parvin, M. M., Fagun, A. N. (2021). "Determinants of Fertility Trend at District, Divisional and Regional Levels and Policy Implication for Poverty Alleviation". *International Journal of Health Economics and Policy*. Vol. 6, No. 3, 2021, pp. 92-99. doi: 10.11648/j.hep.20210603.13.