

## **INNOVATION AND DIGITAL REVOLUTION: THE ROLE OF FINTECH IN MITIGATING THE EFFECTS OF COVID-19**

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### **ABSTRACT**

*COVID-19 pandemic has drastically transformed various aspects of daily life, and its impact on global economic activity has been severe. As a result, Microfinance Institutions (MFIs) have become increasingly important in improving the standard of living for the poor. This study aims to investigate the impact of fintech on the services provided by MFIs in the financial sector, specifically in the microfinance sector of Pakistan. Using fintech as an independent variable with four indicators, microfinance services as a dependent variable with four indicators, and COVID-19 as a moderator variable with one indicator, the study employs a quantitative research method with a five-point Likert scale questionnaire. A random sampling technique was used to select a sample of 300 employees from five out of 11 MFIs in Pakistan, with 276 responses considered appropriate for further analysis. The researchers used MS Excel and SmartPLS software to analyze the reliability and validity of the data, and PLS-SEM techniques were used to evaluate the relationship between fintech and MFIs, and the moderating effect of COVID-19. The study found a positive and significant impact of fintech on MFIs, and the moderator variable (COVID-19) enhanced the relationship between fintech and MFIs. These findings highlight the importance of integrating fintech into the services provided by MFIs to improve the overall economic activity of the microfinance sector, particularly in the context of the COVID-19 pandemic.*

**Keywords:** *Fintech; Microfinance; Microfinance Institutions (MFIs); Covid-19.*

### **INTRODUCTION**

The financial sector and financial inclusion boost economic activities all around the globe, particularly in developing economies. It plays a vital role in enlarging these activities through banking and financial organization. Financial liberalization leads to economic development said various researchers (Awojobi, 2014; Ahmed & Khoso, 2020), they support that Financial

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liberalization helps economic development but during the financial years 2019-21 a huge impediment was faced by all economies in the form of Covid-19 pandemic, when all activities all around the globe stopped, affecting transportations, social , educational, and trade activates but basic necessity required by the nations so consumption level of all other product are reduced whereas consumption of medical products is at their high level and consumption of electricity, gas, telephone, somewhat tertiary level education and slightly business activities in rural and urban areas of the developing country were going. Moreover, the microfinance bank was performing their business activities through different technological tools such as technology Easypaisa by Telenor microfinance bank, Jazz cash, U paisa and others which were supporting the economy. In essence the fintech activities were supporting the economy in rural and urban areas in Pakistan.

According to Ahmed & Khoso (2020a), microfinance institutions facilitate citizens in succeeding in their level of income and establishing and enlarging their business. Moreover, MFIs also empower women in rural and urban areas (Ahmed & Khoso, 2020b). Malik et al. (2020) agreed on same that the role of fintech in business upholding has been tremendous in past recent years in Punjab (Zeb, Jalal, Fayyaz, & Zaheer, 2021). In this study researchers have tried to highlight the impact of fintech on MFIs with a moderator of Covid-19.

Fintech means advanced technologies, such as artificial intelligence, internet finance, 5G, and Blockchain had sustained to infiltrate the finance that comprises fintech technologies (Deng, Lv, Liu, & Zhao, 2021). The prompt growth of fintech is dynamic in the financial lending sector which has helped in building innovation in sectors and providing economic support to businesses (Zhao, Tsai, & Wang, 2019; Ebrahim, Kumaraswamy, & Abdulla, 2021).

According to Sultan, Zafar, & Jatoi (2021), as the impact of Covid-19 on overall economic parameters, the unemployment rate also increased during the pandemic, leaving people to find alternate job opportunities, and starting their own ventures. Moreover, research highlighted that the hoteling and tourism sectors were also affected by Covid-19 at **large**. Hence, many researchers have indulged in understanding how different economic indicators were affected during and after the pandemic. This study however tries to unfold the effect of fintech on MFIs during pandemic, as MFIs play a vital role in supporting small scale businesses. According to Al nawayseh (2020), assessing monetary services is measured as one of the key challenges throughout crisis.

The study also emphasizes factors such as imposition of strict preventive measures and lockdowns which lead to a slowdown in economic activities. Thus, it has been observed that during crises or natural disasters, when human interface is limited, the adaptability towards technology and technology assisted tools is inevitable. The need for technology has increased in every sector and businesses rely more on technology, for instance online shopping for grocery, fast food and medicines orders and delivery, purchasing clothes, online education, and other businesses. In this case, it is certain that most of the payment transactions need online payment options which are provided by most of the commercial banks and MFIs.

The research gap identified in this study is the need to investigate the impact of fintech, MFIs, and Covid-19 on the microfinance banking sector in Pakistan. Although prior studies have examined similar topics in developed economies, they did not solely focus on MFIs as suggested by Hasan et al. (2021). Thus, the researchers aim to address this gap by conducting a study that explores and explains the effects of these factors on the microfinance banking sector in Pakistan.

Hence, there are two objectives of this study, the first focus of this research is to identify the impact of fintech on MFIs services whereas the secondary objective is to identify the impact of fintech on MFIs services with moderating effect of Covid-19.

### **PROBLEM STATEMENT**

Numerous studies have explored the relationship between banking and fintech, including those by Deng et al. (2021) and Zhao et al. (2019), and some have identified factors that influence the use of fintech, such as Al Nawayseh (2020) and Ebrahim et al. (2021). While the use of fintech posed challenges for clients of commercial banks and MFIs in both rural and urban areas in normal circumstances, the Covid-19 pandemic has had a mixed impact on the financial sector, as Chen et al. (2021) have suggested. Consequently, it is imperative to assess the magnitude of the issues and challenges affecting the MFI sector. To this end, this research study utilizes an expressive design approach to examine the impact of Fintech on MFIs, with the Covid-19 pandemic serving as a moderating factor.

### **LITERATURE REVIEW**

In alignment with the research objective researchers work on studying the related works of literature on Fintech and microfinance services. According to several researchers, Fintech is advanced technological support to the financial sector, it includes Blockchain, artificial intelligence, big data management, an advanced new model for businesses, and advanced

application (Chen et al., 2021; FSB, 2019). Moreover, researchers highlighted that due to fintech and its product in the banking sector has more efficient as compared to traditional practices, in addition, the impact of Covid-19 has also changed the direction of dealing with clients (Wojcik & Ioannou, 2020).

According to Mamoona Naz (2020), Pakistan's banking sector was working via using the internet before Covid-19 but to some extent and after the pandemic now the banking sector is working all over the country. Furthermore, there is a higher rate of transition through the internet in different areas of the country. According to Ahmed and Khoso (2020a), microfinance institutions are helping people in improving their level of income, beginning, and enlarging their small businesses. Moreover, MFIs also empower women in rural and urban areas (Ahmed & Khoso, 2020b).

Besides, studies have highlighted that TMB is providing online services to its clients which are discussed already in the introduction such as online funds transfer from one side of the country to the other remote side, online loan repayment, and online insurance transitions.

Bao & Huang (2021) suggest that firms with fintech provide loans to unemployed and low-income clients while comparing with the traditional banking sector. Moreover, both types of firms have a delinquency attitude toward customers, but Fintech firms have more than the ordinary banking sector after the pandemic as earlier commercial banks even though banks are unaffected. Al nawayseh (2020) stated that fintech service providers must ensure that the tool kit provided to them is secure for clients' data, easy to use, and also fulfill the demand of clients to increase the trust level. Moreover, the study suggests that risk intention decreases the level of usage of fintech. Another study suggests that the use of mobile finance applications has a significant impact on services in the short run but the long-run result might be changed.

Additionally, the study has used liability and assets side traditional banking statement of financial performance, usage, and adoption of fintech due to lockdown in pandemics imposed by the government to increase the adoption and usage of fintech applications said by (Fu & Mishra, 2021) so, the first alternative hypothesis of researchers is devised as:

***H<sub>10</sub>***: *There is no significant impact of Fintech on Microfinance Institutions' service.*

Furthermore, studies have highlighted that Covid-19 has risen the financial limitations of businesses but improvement in fintech reduces its adverse effect on it. Prior studies found a significant impact of Covid-19 on banking performance in Indonesia (Ichsan et al., 2021). According to Minh, Le, Fu & Mishra (2021), fintech organizations have increased business competitive benefits and capabilities during and after the outbreak of Covid-19. Several other studies support that there is a significant effect of Covid-19 on fintech and its usage. Moreover, Hasan et al. (2021) emphasized that due to the pandemic, physical interaction between people decreased and cash dealing declined but mobile money transactions have increased tremendously. Hence the second hypothesis of this research is formulated as:

*H<sub>2O</sub>: There is no significant impact of Fintech on Microfinance Institutions' service with the moderating role of Covid-19.*

Furthermore, it is suggested that the future progress of fintech will recover worldwide economies (Ling et al., 2021). Researchers such as Desai and Aronoff (2020) emphasized on the important factors such as: poor and underprivileged clients' security of food, sufficient health facilities, and educational opportunity or schooling in rural and urban areas affected by post-COVID-19 and during COVID-19. Moreover, Hassan et al. (2020) highlighted the importance of microloans to the poorer for poverty reduction and self-employment. Furthermore, several researchers suggest that Covid-19 has damaged the overall economy but in the banking sector of developing countries (Gnahe et al., 2022), the impact is different. An increase in the usage of banking applications via cellular phones and internet banking for payment of educational fees, utility bills, transfer of payments' same bank and interbank funds transfer (IBFT) have been witnessed to be on rise during the pandemic.

Ahmed et al. (2021) highlighted the impact of bank loans on the income level of the poor in rural and urban areas of our country has a significant impact on a generation of income level and paying back the loan to banks through investment in agricultural production. Moreover, scholars suggested that COVID-19 consequently had an important encouraging influence on systematic risk in the worldwide equity souk (Abdulrazzaq, Ali, & Almansouri, 2022). Researchers by adding the additional variable of covid-19 and their impact might change the result of another study as they the used nature of business and loan size as moderators in their study. Aakif and Ahmed (2022) investigated the impact of fintech on the financial performance (FP) of banks in Pakistan by using secondary data out of 31 banks, selected eight banks, and ten years of data and found that there is a significant impact of fintech on five banks wholly

and three bank partially. Moreover, Hassan et al. (2021) suggested that this concept is not new in Pakistan and during Covid-19 it has had a huge impact on online banking services and increased the number of variety of transitions.

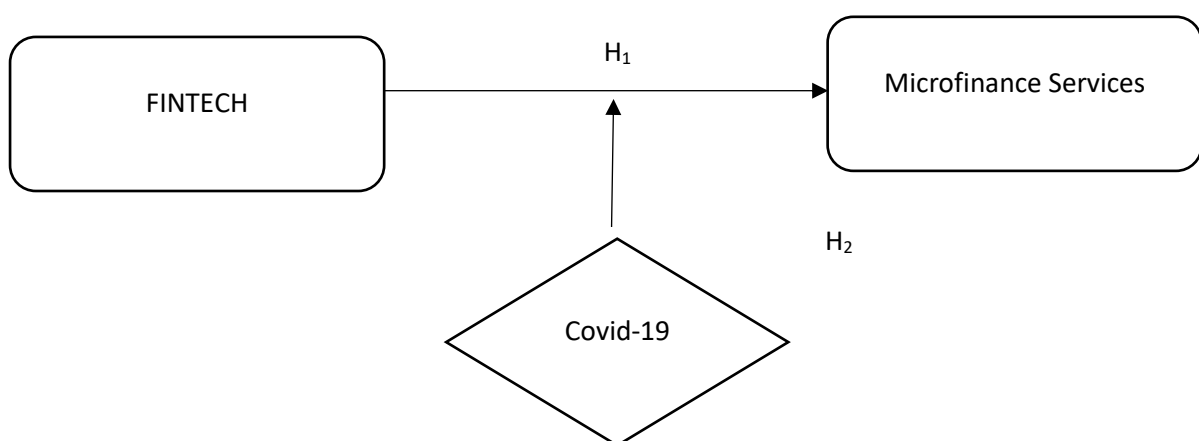
## RESEARCH METHODOLOGY

This research is descriptive and quantitative in nature and is adopted from a previous study by Mago (2014). To explain the cause and effect of variables the researchers have used fintech as an IV, MFIs services as a DV, and Covid-19 as a moderator to analyze the effect of fintech on microfinance institutions' service and in addition to moderating the role of Covid-19. For the questionnaire, the study has utilized the five-point Likert scale, a common and significant tool for the collection of primary data (Chen et al., 2021).

The population of this study is bank officers of a total of eleven microfinance banks in the sector. Researchers selected five microfinance banks and a sample of 300 bank officers were selected out of 300. Only 276 bank officers responded and around 92 percent data were put into process for the outcome of this study. The data was collected from bank officers of the First Microfinance Bank, U Microfinance Bank, Telenor Microfinance Bank, Finca Microfinance Bank, and Mobilink Microfinance Bank in different areas of Sindh, Pakistan. The criteria for selecting bank officers was based on their experience, only officers having more than three years of banking experience in the same sector were selected for data collection. The selected data were processed through MS office Excel sheet and Smart PLS software for further analysis of measurement model and structural model.

This study utilized sample random sampling technique in the collection of data to give equal chance to all bank officers from 5 different microfinance banks.

## CONCEPTUAL FRAMEWORK



*Figure 1. Conceptual Framework*

## DATA ANALYSIS AND STATISTICAL TESTING

The first step in data analysis involved conducting reliability tests on the initial data, followed by an assessment of the data's validity. Table 1. below shows the reliability and validity of the constructs.

**Table 1.** Construct Reliability and Validity

	<b>Cronbach's Alpha</b>	<b>rho_A</b>	<b>Composite Reliability</b>	<b>Average Variance Extracted (AVE)</b>
<b>Covid-19</b>	1.000	1.000	1.000	1.000
<b>Fintech</b>	0.819	0.838	0.879	0.645
<b>MFIs</b>	0.821	0.821	0.882	0.652
<b>Moderating Effect 1</b>	1.000	1.000	1.000	1.000

*Source: This Study*

**Table 2.** Fornell-Larcker Criterion

	<b>Covid-19</b>	<b>Fintech</b>	<b>MFIs</b>	<b>Moderating Effect 1</b>
<b>Covid-19</b>	1.000			
<b>Fintech</b>	0.429	0.803		
<b>MFIs</b>	0.582	0.579	0.807	
<b>Moderating Effect 1</b>	0.408	0.419	0.490	1.000

*Source: This Study*

**Table 3.** Heterotrait-Monotrait Ratio (HTMT)

<b>Covid-19</b>			
<b>Fintech</b>	0.464		
<b>MFIs</b>	0.641	0.687	
<b>Moderating Effect 1</b>	0.408	0.452	0.541

*Source: This Study*

All standards of consistency as specified by Gliem & Gliem (2003) and Hair et al. (2019), which suggest a cut off value of 0.7 are suitable. All values are above 0.810, therefore there is no concern of reliability and validity. As suggested by Hair et al, (2019) the (AVE) shall be not less than 0.5, the results in table 3. suggest that all values in AVE column are not less than 0.5 so data accuracy is not an issue. Moreover, above mention table illustrates that Fornell & Larcker recommended values for validity are also met (Fornell & Larcker (1981). Lastly, the above table shows HTMT results which are all under 0.85 threshold as suggested by Hair et al. (2019).

**Table 4.** Model Fit and R Square

	Fit Summary		R Square		
	Saturated Model	Estimated Model	R Square	R Square Adjusted	
SRMR	0.071	0.076	MFI's	0.503	0.481
d_ULS	0.300	0.264			
d_G	0.129	0.122			
Chi-Square	71.100	64.805			
NFI	0.810	0.827			

Source: This Study

After the standards of consistencies and validities were met, the model fitness was assessed. As displayed in table 4, the value of SRMR is 0.071, which is not greater than the recommended value of 0.08 (Hair et al., 2019), hence there is no model fitness issue.

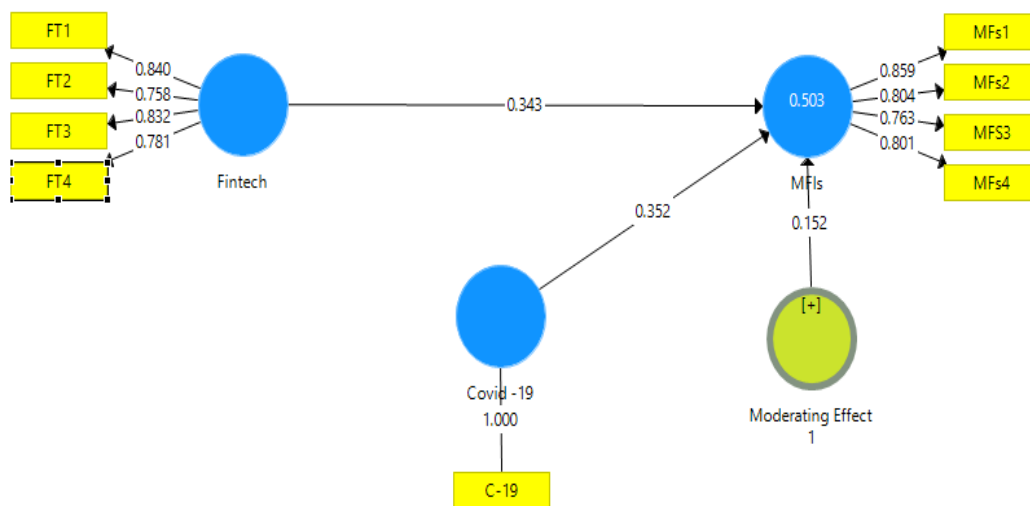


Figure 1. Research Model

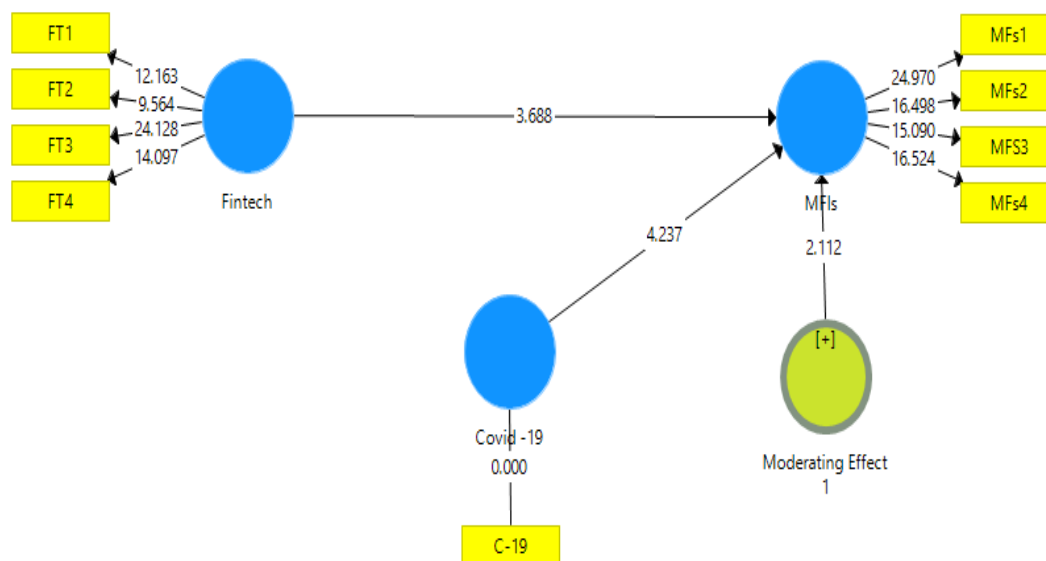
The table and model provided above indicate that the R square value is greater than 0.5, implying that the association between the independent variable (IV) and the dependent variable (DV) is above 50%. This indicates that the variance greater than 0.5 has a significant impact of Fintech on microfinance services, as suggested by (Hair et al., 2019). The generally accepted standards for R<sup>2</sup> values are 0.25 for small impact, 0.50 for substantial impact, and 0.75 for a moderate impact. As such, the R<sup>2</sup> figure obtained by the researchers falls within the substantial range.



**Table 5.** Bootstrapping

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
<b>Covid-19 -&gt; MFIs</b>	0.352	0.344	0.083	4.237	<b>0.000</b>
<b>Fintech -&gt; MFIs</b>	0.343	0.365	0.093	3.688	<b>0.000</b>
<b>Moderating Effect 1 -&gt;MFIs</b>	0.152	0.153	0.072	2.112	<b>0.035</b>

Source: This Study



*Figure 2: Research Model with Path Values*

Subsequently, as suggested the P values must not be more than 0.05 and as T value must be greater than 2 (Hair et al., 2019). The table above is self-explanatory as all T values are greater than 2 and P values are not greater than 0.05. Therefore, all statistics in the specified table display that all paths are constructive. The results show that the MFIs services is impacted by fintech, hence the first hypothesis is accepted based on the given results which show that the T value is 3.688 is greater than 2 and P value less than 0.05, furthermore, with a moderator of Covid-19 has equally impacted MFIs services, hence the second hypothesis is also accepted based on results in table 3, which validates that that the T value is 4.237 and P value IS less than 0.05 . Moreover, the path values are positive which means that there is a positive and significant impact of fintech on MFIs services and similar results are reported in the presence of the study moderators.

## CONCLUSION & DISCUSSION

This study examines the impact of COVID-19, Fintech, and MFIs across three dimensions. Firstly, COVID-19 has had a significant impact on the majority of emerging and developed economies, leading to decreased productivity, increased unemployment rates, and lower demand for goods and services. This uncertainty has had negative financial, economic, and social implications for societies. However, this study also shows that COVID-19 has had some positive effects, such as advancements in technology in the education sector and support for micro-sellers and micro-businesses through online social media platforms. These findings are supported by other researchers, including Hasan et al. (2021).

On the other side, microfinance institutions continue to strive towards improving living standards, increasing income levels, and empowering women by providing a diverse range of loans. These include agricultural loans (for agricultural production and equipment), Gagauz loans (for small initiatives), micro-business loans, and Appni Chhat (for house loans), among others. These institutions support those in need by facilitating micro-business operations, albeit with higher interest rates as compared to commercial banks in Pakistan.

According to the respondents, clients of MFIs expressed satisfaction with paying a slightly higher interest rate on their loans. Additionally, the respondents noted that clients are content because they can access loans of up to 95% of the required amount. These findings are consistent with those of another study by Ahmed & Khoso (2020).

Banking officers reported that online banking/Fintech organizations have been providing services to support their valued clients during this uncertain situation. The results of this study indicate a significant impact of Fintech on MFIs, which has led to improved services and increased reach to clients in both rural and urban areas of Pakistan. Clients were able to benefit from online mobile applications offered by banks and MFIs, enabling them to make payments and access their funds using Fintech services such as Easypaisa, JazzCash, and Upasia. Respondents also noted that service support employees were motivated by management to enhance their services to clients during this difficult time of global depression caused by COVID-19, which has resulted in an increased level of poverty worldwide and consequently, an increase in the number of clients served by MFIs. Moreover, there has been an increase in the issuance of microloans, micro-insurance, and health loans. These findings are consistent with those of other researchers (Ahmed & Khoso, 2020; Hasan et al., 2021).

### **AREA FOR FUTURE RESEARCH**

The scope of this study was limited to examining the impact of fintech on MFIs with the moderating role of Covid-19 and did not encompass the broader banking or financial sector. This is a limitation of the study, and future researchers could explore the impact of fintech on other areas such as commercial banking, Islamic banking, or other financial sectors in their respective economies/countries.

### **IMPLICATIONS OF THE STUDY**

The findings of this study suggest that the utilization of fintech has had a significant impact on the performance of microfinance institutions, which can help them improve their service delivery techniques and strategies. This research is also valuable to various stakeholders, including scholars, bankers, clients, and readers, as it sheds light on the positive or negative effects of Fintech on MFI services during the Covid-19 pandemic.

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