



**THE REPUBLIC OF TÜRKİYE
SOCIAL SCIENCES UNIVERSITY OF ANKARA
INSTITUTE FOR ISLAMIC STUDIES**

**THE IMPACT OF COVID-19 PANDEMIC ON SAVINGS AND
DIGITALIZATION IN SUB-SAHARAN AFRICA COUNTRIES
OF THE OIC REGION**

Master's Thesis

Idris Babatunde Adeyemi

Islamic Economics and Finance Department

June 2024



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Abstract

This research examines the effect of the COVID-19 pandemic on financial inclusion in the Organization of Islamic Cooperation (OIC) member countries in Africa. The researcher has used data from the Global Findex survey, 2011 – 2021 by the World Bank which allows to study how adults utilize financial services in different ways that relate to payments, savings, borrowing, and handling major financial events such as large expenses or loss of revenue or income. By using OLS logistic regression model and other statistical methods, this paper analyzes changes in household savings patterns as well as the usage of digital financial services and transactions before and after the pandemic. The findings show significant changes in financial behavior after the pandemic, including increases in precautionary savings, digital payment usage, mobile money account ownership, and indebtedness. These developments indicate a dynamic response to economic difficulties presented by this crisis with people and their financial systems quickly adjusting themselves to new conditions. Overall, this study contributes to the knowledge of the changing financial landscape following the COVID-19 pandemic and provides insights into measures for encouraging economic empowerment, reducing poverty, and building shared prosperity throughout the region. Additionally, the findings underscore the potential of Islamic finance to leverage digital innovations and promote financial inclusion while addressing challenges related to indebtedness.

Keywords; *Savings, COVID-19, Digital payments, Financial Inclusion, Mobile Money*

ÖZET

Bu araştırma, Afrika'daki İslam İşbirliği Teşkilatı (İİT) üyesi ülkelerde COVID-19 salgınının finansal tabana yayılma üzerindeki etkisini incelemektedir. Araştırmacı, Dünya Bankası'nın 2011 – 2021 Küresel Findex araştırmasından elde edilen verileri kullanmıştır. Bu çalışma, yetişkinlerin finansal hizmetleri ödemeler, tasarruflar, borçlanma ve büyük harcamalar veya gelir veya gelir kaybı gibi önemli mali olayların ele alınmasıyla ilgili farklı şekillerde nasıl kullandığını bilmeyi amaçlayan dünya çapındaki bir araştırmaya dayanmaktadır. Bu makale, regresyon ve diğer istatistiksel yöntemleri kullanarak, hane halkı tasarruf kalıplarındaki değişikliklerin yanı sıra pandemi öncesi ve sonrasında dijital finansal hizmetlerin ve işlemlerin kullanımındaki değişiklikleri analiz etmektedir. Bulgular, pandemiden sonra tasarruflarda, dijital ödeme kullanımında, mobil para hesabı sahipliğinde ve borçlanmada artışlar dahil olmak üzere finansal davranışlarda önemli değişiklikler olduğunu gösteriyor. Bu gelişmeler, bu krizin getirdiği ekonomik zorluklara, insanların ve onların finansal sistemlerinin hızla yeni koşullara uyum sağlamasıyla dinamik bir tepki verildiğini gösteriyor. Genel olarak bu çalışma, COVID-19 salgınının ardından değişen finansal manzaraya ilişkin bilgi birikimine katkıda bulunuyor ve bölge genelinde ekonomik güçlenmeyi teşvik etmeye, yoksulluğu azaltmaya ve ortak refah oluşturmaya yönelik önlemlere ilişkin içgörüler sağlıyor. Ek olarak bulgular, İslami finansın dijital yeniliklerden yararlanma ve finansal katılımı teşvik etme ve aynı zamanda borçlanmayla ilgili zorlukları çözme potansiyelinin altını çiziyor.

Anahtar Kelimeler; *Tasarruf, COVID-19, Dijital ödemeler, Finansal Tabana Yayılma, Mobil Para*

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LIST OF ABBREVIATIONS

ATMs	Automated Teller Machines
AU	African Union
AUC	African Union Commission
CEE	Central and Eastern European
DFI	Digital Financial Inclusion
EU	European Union
EVD	Ebola Virus Disease
FINTECH	Financial Technology
GDP	Gross Domestic Product
ILO	International Labour Organization
IMF	International Monetary Fund
NIBSS	Nigeria Inter-Bank Settlement System
OECD	Organization for Economic Cooperation and Development
OIC	Organization of Islamic Countries
SMEs	Small and Medium Scale Enterprises
SSA	Sub-Saharan Africa
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
WHO	World Health Organizations
WHO AFRO	World Health Organizations African Region

Chapter One

Introduction

1.0 Background of the Study

The COVID-19 pandemic emerged as an unprecedented threat to the order of society. The last large-scale pandemic was in 1918 Spanish Flu and the governments all around the world did not have much experience about how to deal with the pandemic, and this led to a massive problem for the global system. To be able to deal with this problem, many countries adopted social distancing measures, closure of borders to foreign visitors, and large-scale lockdown measures which also implied temporary closure of businesses, which led to unemployment throughout. The pandemic has had significant global economic implications, too. It has led to a contraction, a predicted 5.2% decline in the world GDP (OECD, 2020b).

Studies show that a worldwide pandemic profoundly affects different sectors such as the education system, healthcare systems, and economies (Uğur & Durak, 2024; Ugur & Pérez, 2023). Assessing the impact of the COVID-19 pandemic on the labor market, the International Labor Organization (ILO) projected a global loss of 255 million jobs (ILO, 2021). Considerable losses in labor markets indicate not only difficult hardships witnessed by individuals but also the urgent need to monitor the pandemic's influence on employment, wages, and other labor market outcomes.

It is known that the pandemic has influenced economic activity, resulting in short-term shocks in certain sectors such as the oil and agricultural sectors. To mitigate the shock, governments all around the world invoked monetary and fiscal policies. Furthermore, the pandemic has produced fast digitalization and adoption of technology, mainly in the financial and

internal auditing fields (Jarva & Zeitler, 2023). For instance, a financial institution faced disruptions due to the lockdown measures, which limited its efficiency and productivity. In response to these problems, the financial institution identified the need to embrace technology to be able to withstand the competition among other financial institutions already using technology and also the use of mobile banking apps, online account openings, and contactless payment options to increase productivity. Also, it has been revealed that the economic issues imposed by the pandemic has impacted all the financial institutions in Gulf countries such as Saudi Arabia, Bahrain, and Oman among others (Akkas & Al Samman, 2022).

Savings are of great importance to individuals and countries because savings enable both individuals and countries to plan for long-term goals. One of the important determinants of people's savings is their available income. Savings in a country is a determinant of aggregate demand; and in the long term, savings also allow for capital accumulation and wealth (Masson, 1995). However, according to Haushofer and Fehr (2014), poverty and its psychological consequences have a significant impact on savings. Due to extreme constraints on credit and uninsurable background risks, the poor are at risk of income and health shocks which restricts their ability to save. The pandemic has made a lot of households and individuals vulnerable to these types of shocks which could have affected the savings patterns.

The pandemic can have significant impacts on digitalization and inter-firm relationships in Africa. In Sub-Saharan Africa, investing in digital services provision has both positive and negative effects. From a positive angle, digitalization allows for higher sales, advertising, and promotion through digital channels, leading to expanded clientele, revenue, and profits. However, from a negative perspective, digitalization is costly and it can lead to the deepening of the digital divide (i.e. unequal access to digital technologies and internet connectivity). Providing digital

services also requires training employees in digital literacy knowledge and skills, and potential cybersecurity problems (Dadzie, 2023). The pandemic has also affected inter-firm relationships, with minimal impact on partnership relationships, which are characterized by formal agreements and long-term collaborations. It also had significant effects on non-partnership relationships, which typically involve more transactional interactions and less formalized arrangements (Asare et al., 2023). Digital innovation in Africa as a result of the conditions imposed by the pandemic is felt especially in sectors like banking, medicine, creativity, support, and education. Based on the survey that was conducted in 2020 by McKinsey Company, most respondents who had their first experience with digital forms of payment during the pandemic said that they will continue to use them after things get back to a normal state of affairs. 75% have stated their willingness to remain with this new method even when things are back to pre-pandemic conditions (Baig et al., 2020).

The COVID-19 pandemic has impacted individuals on a wide scale, and people were scared of the damage coming from the pandemic-related economic shock (Deloitte, 2021). Thus, the impact of the pandemic extends well beyond its direct impacts. Even if people are hurt by the pandemic financially or not financially, their awareness has increased about the need to protect themselves from future shocks. For example, local communities have mobilized efforts to educate people about preventive health measures, such as hand hygiene, mask-wearing, and vaccination, to mitigate the impact of future disease outbreaks. Additionally, there has been an increased emphasis on financial literacy and savings mobilization, with individuals and households seeking to build emergency funds and diversify income sources to mitigate against future economic shocks.

Previous studies have demonstrated a negative impact of the pandemic on savings behavior (Loko et al., 2022; Mbongwe & Qutieshat, 2023). The pandemic has been the cause of the economic downturn and the rise of uncertainties. This situation could have diminished people's

appetite for investment. Additionally, the pandemic has led to increased uncertainty about income and changes in people's psychological expectations, which have influenced their behavioral choices, including financial asset allocation and precautionary savings (Manshani et al., 2022). The income decline during the pandemic could have depleted individuals' savings, especially in the low-income African region, as they had to use their savings to cover expenses. Overall, the COVID-19 pandemic is reflected by major decreases in saving behavior concerning changes in the patterns of saving and the forced savings that resulted from the economic and social disruptions caused by the pandemic.

This study is going to focus on how the pandemic has affected people's financial behavior. In particular, this study tends to examine in detail the household savings patterns and digitalization of financial services and transactions in the Organization of Islamic Countries (OIC) member states in Africa before and after the COVID-19 pandemic. The household savings pattern of individuals in the African countries are measured using their levels of savings and indebtedness. In this research, the World Bank Global Findex database between 2011 and 2022 is utilized. It is available to examine the effect of the COVID-19 pandemic on Financial Inclusion, Digital Payments, and Resilience due to its broad coverage of questions (see Data section for more details)

The reason why this study focus on the household saving patterns and digitalization in the OIC member states in Africa during and after the COVID-19 pandemic is that these countries are generally less developed which makes fighting the pandemic more difficult and more vulnerable to the impacts of the worldwide economic contraction due to the pandemic. It is important to document whether African countries were damaged or benefited while trying to manage the pandemic in the area of savings and digitalization of financial transactions and services. Additionally, the research also aims to discuss the impact of digitalization in increasing financial

inclusion in society, especially the post-pandemic in the OIC countries. Examining this aspect will offer valuable insights into the Islamic financial sector, suggesting that investing in FINTECH can foster industry expansion while simultaneously promoting greater financial inclusion.

1.0.1 Background of the COVID-19 Pandemic in African Countries

The pandemic has been a worldwide public health emergency of exceptional scale as a result of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In December 2019, a novel coronavirus appeared in Wuhan, China, and shortly after that, spread geographically worldwide. As of March 2020, the World Health Organization declared it a pandemic after seeing its spreading ability and severity. At first, there was uncertainty and little information about the new disease. Developed countries including the United States, Britain, Italy, and Spain reported significant cases and deaths, as a result of the devastating effects of COVID-19 (Pak et al., 2020).

It is predicted that least-developed and middle-income countries, especially in Africa, will be the most affected by the pandemic. Africa, which has a lower Human Development Index than other continents, was expected to encounter tougher challenges in handling COVID-19 infection and death cases. The continent also faces resource deficiencies in public health and research which makes its prospects for dealing with the pandemic even worse (Pearson et al., 2020). The international community was aware of the danger the pandemic is posing to the social and economic resilience of nations around the world particularly disadvantaged African countries (UN, 2020)

One particular disadvantage is the low vaccination rate even before the pandemic. Although the Africa continent ranks second as the largest and most-populous continent, but its vaccination rates are relatively low, with some countries vaccinating less than 10% of their

population compared to the developed economies that vaccinate more than 60% of their population (World Bank, 2021), this variation puts recovery efforts from the effects of COVID-19 globally at risk. The low vaccination rates of about 1.4 billion people on the continent of Africa, who represent 18% of the world's population, could have significant effects on global health and economic stability (World Bank, 2021).

The Africa region experiences a dual problem of public health and economic underdevelopment, which threatens to overload healthcare systems, ruin livelihoods, and impede the continent's growth prospects for years to come. Before COVID-19, in 2019, the continent had already seen a decline in growth and poverty reduction generally, with substantial differences between countries (OECD, 2020a). In the year 2020, the African national debts have been increasing rapidly (OECD, 2020a). Many African countries were trying to respond immediately to the pandemic and the economic crisis associated with the pandemic with a large baggage of unsustainable debt. Immediate fiscal measures require additional government spending such as subsidizing SMEs, keeping people employed, medical resources, and public investment and foregone incomes such as social security contributions and the cancellation of certain taxes. These types of policies immediately lead to the deterioration of the budget balance without any direct prospects for future improvement. In particular, while a major country like Nigeria may have wider fiscal space because of lower levels of government debt as a share of GDP, highly indebted economies like Eritrea, Sudan, and Cabo Verde may reach public debt levels that they cannot pay (IMF, 2020).

However, African countries also had previous experience of dealing with public health outbreaks. For instance, African countries dealt with many outbreaks such as Ebola in 2014, and HIV/AIDs in 1981 among others before the outbreak of COVID-19. These experiences with other

disease pandemics enabled them to engage communities, communicate risks, and adapt innovative methods to craft African approaches to control spread of the COVID-19 (UN, 2020).

1.0.2 COVID-19 Pandemic and African Countries' Responses

Governments worldwide including African governments responded swiftly to the pandemic with an array of policy tools, many of which were unprecedented or employed on an unprecedented scale in emerging economies. Measures like substantial direct income support, debt moratoriums, and central bank asset purchase programs were introduced. However, the magnitude and range of these programs varied significantly. Low-income nations faced challenges in mobilizing resources due to restricted access to credit markets and high pre-crisis government debt, resulting in minimal or absent fiscal responses as a percentage of GDP. Developed economies uniformly deployed large fiscal responses, while middle-income nations exhibited substantial variation, influenced by governments' capacity and willingness to invest in support initiatives (World Bank, 2022).

Since the beginning of the pandemic, teamwork between worldwide health partners and health departments has helped to improve intensive care facilities and quick access to intensive care. This includes powerful medicines for people in higher-risk groups. There's also a strong push toward getting vaccinated everywhere. In addition, the World Health Organization's African Region (WHO AFRO) helped many countries to improve their testing abilities. They are also making them stronger in preventing the spread of diseases and setting up care at home for sick people. This support comes from a program called Community Based Response Initiative. African countries have teamed up locally and internationally to pool their efforts and resources in response to the pandemic, implement best practices, and share experiences. This involves working with

regional partners such as the African Union (AU) and the Africa CDC as well as partnerships with international agencies, donors, and development bodies (WHO, 2020).

African countries have reacted to the pandemic by taking various measures. Many science academies in Africa have provided committee support to their national governments and raised funds for preventive activities (Kado, 2023). The Central Bank of West African States has taken initiatives to reduce the economic shock of the pandemic crisis. At the local and national levels, government trust tried to implement social distancing; where, in regions where there is higher trust in local and national government, social distancing has been practiced more often (Yu et al., 2023).

Rwanda took the lead in launching the first public COVID-19 vaccination initiative, driven by a pro-health policy environment championed by the president of the country (WHO, 2023). Technically, despite the perception that the pandemic has waned, they upheld real-time virus testing, swiftly identifying new case clusters and responding promptly. Their testing rates, averaging 8 tests per 10,000 people weekly during the crisis, exceeded the WHO-recommended benchmark. Additionally, Rwanda's response extended beyond COVID-19 vaccinations, addressing critical healthcare facets. Notably, the supply of medical oxygen in clinical facilities surged from 35% at the pandemic's onset to full capacity in 2023. This intensive care treatment access is vital for treating acute respiratory failure related to Coronaviruses. Rwanda's innovation in oxygen production, now producing over 2,500 cylinders, exemplifies its ability to leverage crises for novel solutions (WHO, 2023).

In Tanzania, by January 2023, 53.1% of the total population and 100% of the eligible population aged 18 and above were fully vaccinated. Similar to Rwanda, Tanzania's success lay in integrating COVID-19 response efforts with those addressing other emergencies like Ebola Virus Disease (EVD) and Cholera. Both countries emphasized government-led strategies for resource

optimization and long-term planning to minimize, mitigate, and predict risks. The WHO provided crucial support in data management, aiding policy-making and decision processes, particularly in continuous COVID-19 vaccination data disaggregation, analysis, and tracking. Tanzania further involved in Simulation Exercises (SIMEX) as guided by the International Health Regulations M&E Framework, enhancing response assessment and improvement at sub-national levels. Tanzania's emphasis on open risk communication and community engagement, through integrated disease or crisis management activities, notably benefited the country (WHO, 2023).

In conjunction with direct income support initiatives, governments and central banks employed other measures such as expansionary monetary policies, transaction fee waivers, loan restructuring, and conditional cash transfer programs designed to benefit both households and businesses (Machasio, 2020; World Bank, 2022). For instance, central banks in countries like Sierra Leone, Ghana, the Gambia, and Liberia, among others, have lowered policy rates and lowered minimum reserve requirements. These actions were aimed at augmenting the money supply. Additionally, money service providers in the area have been encouraged to adjust the original terms of loan repayment with more flexibility and implement debt moratoriums. This move aims to assist individuals and businesses facing financial difficulties due to the economic downturn (Machasio, 2020; World Bank, 2022).

According to the Global Economic Prospects, the COVID-19 pandemic and accompanying containment efforts were expected to produce an economic decline of roughly 2.8% in Sub-Saharan Africa (SSA) in 2020 (Machasio, 2020). When COVID-19 started in Nigeria in February 2020, it caused big problems for the country's economy. Banks were operating mainly with the face to face transactions. When the pandemic brought restrictions on people's ability to move due to lockdowns, banks were adversely affected. As a response, banks changed how they worked.

They cut back on working hours and shut branches too. Some stayed closed until about halfway through September 2020. People were not allowed to go into the bank to keep a safe distance from each other as guidelines to curtail the virus. Also, non-essential bank workers risked suspension or losing their jobs. The effects of the pandemic in Nigeria led to many people losing their jobs, getting less money, and being laid off. This happened because of lockdowns, curfews, and long closures that affected everyone's life in the country (Kazeem et al., 2021).

Cash transfer programs were introduced by several governments around the world as a means to aid vulnerable families and small to medium-scaled enterprises (SMEs) in managing the financial challenges brought about by lockdown measures. Togo, among the African nations, implemented mobile-based cash transfer services as part of their strategy (Machasio, 2020).

Also, governments in certain African nations have urged banks and financial institutions to eliminate or decrease fees while enhancing daily transaction limits linked to e-financial services and transactions. Some state bodies have reduced fees linked to e-transactions and raised transaction limits for mobile money such as in Kenya, Ghana, and Liberia (Machasio, 2020).

Digitalization of the financial sector has become a priority in several African countries and is one of the responses to the pandemic from government and regulatory authorities. Strategies like transaction fee removal, the introduction of digital payment incentives, as well as the adoption of supportive regulatory regimes often lead to a rise in the adoption of digital financial transactions and services (Okeleke & Suardi, 2021).

In summary, African countries have utilized a variety of tools to tackle the COVID-19 pandemic, as a result, they have combined public health measures, healthcare system

strengthening, economic and financial assistance schemes, and regional cooperation to minimize the effects of the crisis on healthcare system, economies and communities in the country.

1.1 Research Objectives

The main aim of this research is to examine the household savings patterns and digitalization of financial services and transactions in the OIC countries in Africa before and after the COVID-19 pandemic (2011-2022). The following are the purposes of the research;

- To examine the changes in savings behavior among individuals and households in the OIC countries in Africa before and after the pandemic.
- To analyze the effect of the pandemic on the digitalization of financial services and transactions in the region.

1.2 Research Questions

The study provides a main question that contains all of its stated objectives, purposes, and hypotheses. The question is designed to match the research's primary purpose;

- a) What are the changes in savings behavior among individuals and households in the OIC countries in Africa in the post-pandemic?
- b) What is the effect of the pandemic on the digitalization of financial services and transactions in the region?

1.3 Research Hypothesis

The following is the hypothesis that will be used in the study;

Hypothesis 1: The study hypothesize that the COVID-19 pandemic disrupts savings behavior in the OIC countries in Africa. This hypothesis can be justified with existing literature and theories about economic uncertainty. Research shows that during times of economic uncertainty, such as a pandemic, individuals may alter their savings behavior. For instance, Borowski and Jaworski (2023) indicates that economic uncertainty such as COVID-19 pandemic leads to increased precautionary savings in some contexts, while Loko et al. (2022) shows that it causes a reduction due to decreased income and increased expenditures on health and essential goods. Additionally, the behavioral economics literature suggests that crises can lead to panic behavior, which includes reduced savings. For instance, a study by Loewenstein et al. (2001) on risk perceptions during crises shows that individuals may either save more out of fear or deplete savings due to immediate needs.

H₀: The COVID-19 pandemic has a positive impact on savings behavior.

Hypothesis 2: The study hypothesize that the COVID-19 pandemic improved the digitalization of financial services and transactions in the OIC countries in Africa. The COVID-19 pandemic has accelerated digital transformation across various sectors. Bongomin et al. (2023); Dluhopolskyi et al. (2023) highlight that the pandemic has led to a surge in digital adoption in financial services as customers shift to online and mobile banking to avoid physical contact in many countries.

H₀: The COVID-19 pandemic has a positive impact on the digitalization of financial services and transactions.

1.4 Significance of the Study

The main contribution of this study is to offer helpful information regarding the impact of the pandemic on savings behavior and the digitalization of financial transactions in the OIC countries in Africa. Although there is a growing number of studies on the global scale of COVID-19, African countries are rarely involved in research, which hinders the availability of evidence on the specific effects of this pandemic.

Promoting Financial Inclusion: It is paramount to study the effect of the pandemic on digitalization and access to financial services to achieve the progress of financial inclusion in African countries. The paper will examine whether the pandemic has influenced the willingness of unbanked individuals to open bank accounts, use mobile banking services, and digital payments.

Empowering Vulnerable Populations: It is also important to describe the heterogeneous impacts of the pandemic. For instance, previous studies documented that the COVID-19 pandemic had a particularly negative effect on disadvantaged population groups such as women, low-income individuals, and marginalized communities. The study will examine the differences in saving behavior and digitalization of women as well marginalized groups. This can be useful for identifying the specific barriers that keep this group behind and how they can be helped to become financially resilient and empowered through the design of specific interventions.

Supporting Economic Recovery and Resilience: The information gained from our study can be utilized to improve the financial ecosystem in Africa by identifying the plans to lower the economic and social impacts of the pandemic and support the steady recovery. Through the knowledge of the dynamics of savings behavior and digitization, policymakers, and stakeholders

will be able to respond accordingly to future crises by building financial systems and households' resilience.

1.5 Scope of the Study

The scope of this study is limited to the household's savings patterns as well as the digitalization of financial services and in the OIC countries in Africa before and after the pandemic. This study will mainly focus on African OIC member states. It encompasses Niger, Nigeria, Mali, Chad, Cameroon, Burkina Faso, Senegal, Benin, Cote d'Ivoire, Gabon, Gambia, Guinea, Mozambique, Sierra Leone, Togo, and Uganda.

OIC countries in Africa represent an important part of the economy of the African continent, contributing to its GDP, trade, and investment flows. These countries play an essential function in regional economic integration, intra-African trade, and cross-border investment, making them important actors in shaping the landscape of Africa's economy. These countries are important for the study due to their economic significance, financial inclusion challenges, digital transformation opportunities, resilience and adaptation strategies, and regional changes. Also, some of these countries are experiencing rapid growth in Islamic Finance (Al Amine, 2016). By examining the savings behavior and digitalization of financial services in these countries, researchers can generate valuable insights to inform policies, programs, and interventions aimed at fostering inclusive, sustainable development, and promotion of Islamic Finance in Africa. The study will be particularly centered on the pre and post pandemic period, with its main concern the years 2011-2022. The scope of the study will also pay special attention to the provision of recommendations to African countries' stakeholders, specifically Islamic financial institutions within the OIC.

1.6 Organization of the Study

This research will be implemented in five separate chapters. The chapter one will consist of the introduction of the study, objective of the study, statement of problem, research hypothesis and question, scope of the study, and significance of the study,. Chapter two consists of literature review. It comprises of a brief overview of the COVID-19 pandemic for African countries, the effect of the pandemic on the savings behavior and digitization of financial services in African countries, and empirical reviews of the study. The studies about the impact of COVID-19 on the saving behavior and the digitalization of the financial sector and its transactions in the Africa countries were reviewed. In chapter three the details of methodology that the study chose to employ were provided. Chapter four will particularly have a full and detailed description of data and interpretation of the findings. The chapter five, also the last chapter will provide a discussion on the findings with regard to previous studies, have some policy recommendations and a conclusion of the study.

Chapter Two

Literature Review

This literature review is aimed at critically examining the existing literature on savings behavior and the digitalization of financial services in the African countries of the OIC region with a concentration on the implications of the COVID-19 pandemic. This review will try to give answers to the questions presented in Chapter One by reviewing various theoretical perspectives, empirical studies as well as policy debates. Moreover, by making use of the knowledge from behavioral economics and financial inclusion theory, this review shall provide a detailed coverage of the determining factors of savings behavior and digitalization in African countries of the OIC region. Besides that, the literature review will indicate the research gaps.

Duflo and Banerjee (2011) highlighted that individuals having poor health often find it difficult to sustain regular employment or engage in productive work. Health issues such as the pandemic can lead to absenteeism, reduced efficiency, and the inability to perform physically demanding tasks, consequently impacting economic well-being. They emphasized that this health-productivity nexus creates a cycle of poverty, as individuals with compromised health struggle to escape economic hardship. Therefore, in this study, the pandemic was expected to affect people's financial behavior since it affects their ability to work, and leads to reduction in income as a result of the lockdown. The pandemic could also accelerate the level of indebtedness to meet daily needs.

The pandemic has also hurt the economic performance of many countries where tourism contributes to a major part of their revenues including countries like Cabo Verde, Tunisia, Seychelles, Comoros, Mauritius, Madagascar, Botswana, Gambia, Senegal, Rwanda, Tanzania, Lesotho, Namibia, and Egypt that largely depend on tourism. The tourism sector contributed about 10% to the GDP of these countries as of 2019. Furthermore, due to the prohibition of international

travel, many African airlines were negatively affected such as South African Airways, Ethiopian Airlines, Kenya Airways, and Egyptair that are large employers and have connection linkages with the other local businesses (AUC, 2020).

The COVID-19 pandemic might influence some African countries particularly depending on their export and import orientation. For instance, Nigeria is an oil exporting country and oil prices dropped by 50% in 2020 worldwide (OECD, 2020a). This could particularly affect oil exporting countries like Nigeria, Equatorial Guinea, Ghana, and Gabon (Onuka, 2021; Sule Magaji & Abdullahi, 2022).

Furthermore, pandemic COVID-19 had a detrimental effect to social services and economies worldwide. Despite the difference in the level of development, all nations have been hit by the pandemic. However, the least developed economies, which usually are situated in Africa, have been most hit by the pandemic. The health service delivery is severely affected by the COVID-19 in the African continent. It has been emphasized that more assistance to fight the horrific outcome of the pandemic in Africa is necessary (Bwire et al., 2022).

2.1.1 COVID-19 Pandemic and Savings Patterns in African Countries

It is not easy for people living in Africa to save as their economic resources are only sufficient for consumption needs. Even their small savings cannot be mobilized much as there are no established habits of using banks enough (Sule Magaji & Abdullahi, 2022).

In African countries, the usage of mobile money account is common among people to save. In developing countries, only 5% of adults save money through mobile phones, whereas within African countries, 15% of adults (equivalent to approximately 39 out of every hundred mobile money users) utilize these accounts for savings, comparing the usage of mobile phones for saving

money in developing countries and African countries. It shows that a higher percentage of adults in African countries use mobile money accounts for savings, indicating a greater prevalence of mobile money usage in African contexts (Demirgüç-Kunt et al., 2022). This pattern is noticeable in places like Ghana, Kenya, Senegal, and Uganda. In these countries about 30-37 percent adults are using mobile money to save their cash. This increase was mostly because many adults were using mobile money accounts for their savings instead of traditional banks (Demirgüç-Kunt et al., 2022).

The pandemic has resulted in different problems such as job losses in the labor market that have affected income volatility such as reduction in income and unpaid wages, which has led to disruptions in the economy. This is especially applicable to workers in the informal sector, who often have irregular and unstable employment and those in insecure employment, such as temporary workers. Additionally, the pandemic has led to a decrease in household income levels, particularly for lower-income earners, exacerbating poverty in the region (Munyeka & Munzhedzi, 2022). The pandemic has caused inflation in some sectors such as food prices which makes it hard for both individuals and households to save regularly. In the event that incomes are uncertain or reduced, people often pay attention to their immediate needs such that they can afford to meet their expenses instead of saving for the future. It leads to a lack of financial security and makes it difficult for individuals to plan for emergencies or long-term goals (ILO, 2020; McKibbin & Fernando, 2020).

Individuals working in the finance industry were not able to work and their families are expected to have a reduction in savings, especially when debts or rent payments stay the same. This might increase private debt. The level of indebtedness has increased due to the pandemic, and

government interventions and measures need to be implemented to stop too much debt from hampering economic recovery (OECD, 2020a).

Nevertheless, government intervention, including cash transfer programs and social assistance schemes, has been used as a way of providing financial support to vulnerable populations that were hit hard by the pandemic. For example, Cape Verde, Ghana, Nigeria, and Togo are some of the nations in Africa that made use of mobile-money services to transfer cash to the vulnerable populations during the pandemic (Machasio, 2020). Some recipients choose to use the money for immediate consumption, which means they spend it on essential goods and services to meet their immediate needs. On the contrary, some beneficiaries divert a part of the funds into savings or debts settlement activities. The decision one makes on whether to save or repay debts depends on the circumstances of the individual. Moreover, there is evidence for a shift in consumer behavior in the EU member states after the pandemic which has resulted in increased precautionary savings as people reassign their funds from discretionary spending to emergency funds and reduce non-essential purchasing as a result of economic uncertainty (Borowski & Jaworski, 2023).

Additionally, the pandemic-increased economic uncertainty, and financial challenges as a result of the reduction in income of 54% of lower-income households. This could have also affected household savings behavior (Chidimbah Munthali et al., 2022).

Overall, the pandemic has negatively impacted household income and savings, in the OIC member countries in Africa.

The behavioral economics theory can be utilized to explain the influence of the pandemic on savings patterns. The behavioral economy focuses on psychological biases, limited resources of cognition, and attitudes toward fairness. It is a branch of study that is a combination of

psychology and economics. The theory appreciates the fact that sometimes individuals act irrationally, and the biases, emotions, and societal effects influence their decision-making processes. It explains how these factors influence economic outcomes (Alam, 2022; Miller et al., 2015).

The theory may serve as an explanation of the changing savings behavior among people in times of the pandemic. The pandemic has caused substantial financial crisis and disturbance, hence convincing people to change the way they handle their finances. Researchers in this field of behavioral economics have concentrated on comprehension of savings behavior throughout the COVID-19 pandemic.

The theory suggests that individuals may have reacted to the uncertainty by raising their savings as a precautionary measure. This could be a result of the psychological requirement for security and the need for financial capability of protection against sudden or urgent situations. Khanna et al. (2023) shows that consumer buying behavior has shifted towards necessary items, with a focus on saving and safety.

The theory is also very useful for explaining how people adapt to new economic situations. In the context of the pandemic, many people witnessed the alteration in their income, expenses as well as a whole financial situation. A behavioral economic perspective implies that in such times of uncertainty, people may resort to applying heuristics, which are mental shortcuts for decision-making. For instance, they could use past experiences or social norms to be the guides in their financial decisions (Alam, 2022; Miller et al., 2015).

Additionally, individuals might also display biases such as loss aversion, where they rather avoid losses than gain rewards, which will be a motivating factor in their decision-making as new

financial situations are encountered. The pandemic of COVID-19 has been highly effective in influencing the investment behavior of Chinese investors in which some biases such as representativeness, overconfidence, disposition effect, and herding effect are being considered (Hii et al., 2023).

2.1.2 COVID-19 Pandemic and Digitalization of Financial Transactions in African Countries

Digital payments are considered one of the key tools for carrying out online transactions, making it easy and secure for customers and merchants (UNCTAD, 2020). The implementation of digital forms of payment becomes necessary as a result of the risks of COVID-19 being transmitted through face-to-face transactions. However, not only it is important in the reduction of the risks of transmission, but also the electronic payment form can also largely take on the role to greatly improve financial account access and usage. The COVID-19 pandemic and government-imposed limitations on movement heightened the demand for online financial services, hastening the transition to digital finance in numerous economies (Klapper & Miller, 2021). Digital payments hold the potential to improve accessibility to financial services in African countries, especially for individuals who are unbanked, and easy transactions for small businesses through online transactions (Klapper & Miller, 2021).

The COVID-19 pandemic has rose the digitalization of financial services and transactions in African countries. The crisis has led to a rise in economic inactivity, leaving many families and businesses without access to traditional bank branches (Bongomin et al., 2023). As a response to the pandemic, the digital money industry has played a key role in enabling services and innovations that have reduced the inconsistency caused by the pandemic (N. R. Kalita, 2023). The emergence of e-digital financial innovations like mobile payments during the pandemic period has not only

been helpful in access but also for the utilization of financial services in underdeveloped economies. Furthermore, according to Minsat and Saint Martin (2022), mobile money transactions in Africa have increased by 15% during the pandemic crisis.

Africa has experienced a significant rise in cross-border data transfer, mobile money transactions, and investments in the information and communication technology sector during the pandemic (Minsat & Saint Martin, 2022). The e-bank services introduction contributed to the ratio of e-banking operations for banks with relatively higher cashless payment rates (Dluhopolskyi et al., 2023).

In this respect, Nigeria's financial services sector has made big progress. The Nigeria Inter-Bank Settlement System (NIBSS) indicated strong growth in different electronic payment ways between January and May 2020 (Kazeem et al., 2021). Online transaction value was 6.421 trillion Naira in April 2020 and this has increased by 82% in May 2020 in just 1 month. People started using online banking during the lockdown in February 2020. According to the current data released by NIBSS, cashless transactions in Nigeria rose by 42.05% to hit 395.47 trillion Nigeria naira in 2022 (NIBSS, 2023).

Governments and financial officials in the Africa region instructed banks, and other financial services providers to offer online banking tools on smartphones or computers to deal with the pandemic. This process will try to lessen how much people touch each other, reducing the chances of spreading COVID-19 by touching cash. For example, some banks have started using digital methods for loan applications and making mortgage requests. They've also added online sign-ups for new accounts along with virtual ways to pay bills (Machasio, 2020).

Also, African countries were making progress for financial inclusion before the pandemic by mainly speeding up access to technology and improvement in current systems. Mobile money services like M-Pesa in Kenya (Ahmad, 2020), MTN Mobile Money in Ghana (Nyame-Mensah, 2013), and Zoono from Zambia (Phiri, 2017), were available before the pandemic and these accounts are known to help people get more quickly included in the banking system than traditional ways. Digital tools including mobile money, e-banking, and ATMs are expected to be particularly useful for small and medium-scaled firms (SMEs) to be more productive and have better access to financial sources and markets such as banks, microfinance, and other financial institutions (Machasio, 2020). The pandemic has contributed to the growth and improvement of e-commerce platforms and online marketplaces in Africa, as consumers buy commodities and services online.

In summary, the COVID-19 crisis has reinforced the digital transition process in the financial sector in Africa, enhancing the use of e-payment systems, mobile money networks, and online banking.

The influence of the pandemic on the improvement of digitalization of financial transactions and services can be analyzed using the financial inclusion theory. Financial inclusion theory aims at understanding the usage of financial services among populations that have seen less level of financial services as measured by traditional banking systems usage (Ozili, 2018). Additionally, it emphasizes the need to address barriers such as lack of physical infrastructure, limited financial literacy, and exclusionary policies that prevent certain groups from accessing financial services. Ozili (2020) addresses these barriers by introducing some theories of financial inclusion. These include the public good theory, the vulnerable group theory, the financial literacy theory, the public service and money theory, the community echelon theory, and the intervention fund theory of financial inclusion.

The Financial Inclusion Theory can be employed as a framework of reference to examine the outcomes of digitalization of financial transactions and services in the OIC member countries in Africa. During the COVID-19 pandemic, the digitalization of financial transactions particularly of traditional banking services which were affected by lockdowns and social distancing became extremely important. These theories can be applied in the context of digital financial inclusion efforts. For instance, the Public Good Theory aligns with initiatives to provide digital financial services at free or very affordable cost to all members of society, thus making sure that even marginalized groups partake in digital banking platforms. Vulnerable Group Theory emphasizes the necessity of making accessible digital financial solutions that are tailored to particular marginalized populations such as individuals without access to traditional banking, and low-income individuals, by providing digital financial services to satisfy their specific wants and needs (Allen et al., 2016).

Moreover, the Community Echelon Theory suggests utilizing community leaders to promote the adoption of digital financial services within their communities, leveraging their influence and trust to encourage participation to improve the level of adoption during and after the pandemic. The Public Service Theory highlights the functions of government in accelerating digital financial inclusion initiatives, including investment in infrastructure and regulatory frameworks to support widespread access to digital banking platforms. Research has shown that governmental investment in financial inclusion is growing at a higher rate than private investment (Dashi et al., 2013). The Financial Literacy Theory emphasizes the need for people to be sufficiently educated regarding digital financial services to boost their digital literacy and hence make informed decisions in their financial lives that is even more important nowadays with the pandemic which has seen reliance on digital transactions increase significantly. Overall, the

theories show useful mechanisms that explain the phenomena and provide insights into the challenges and opportunities of digital financial inclusion during the COVID-19 pandemic.

2.2 Empirical Review

This section will review findings from numerous empirical studies on how the COVID-19 pandemic has affected savings behavior and the digitalization of financial transactions. The review will encompass studies conducted in both developing and developed countries, including those focused on African nations.

2.2.1 COVID-19 Pandemic and Savings Behavior

Several empirical studies have examined the impact of the COVID-19 pandemic on household savings behaviors across different regions, employing diverse methodologies and analytical approaches. Guo et al. (2022) aimed to investigate how the COVID-19 has affected household financial behaviors in China and also attempted to examine the pathways through which these behaviors are influenced by COVID-19, which employed the Logit model. During the COVID-19 pandemic, consumers were more likely to borrow and less likely to save, while their responses to insurance and investment experienced fewer fluctuations. However, the impacts of COVID-19 on household saving and investment behaviors were linked to household attitudes toward the pandemic. Additionally, the study suggested that implementing more effective strategies to decrease households' panic during public health emergencies can help stabilize household financial behaviors in the short run. Similarly, Tiwari and Tomer (2022), studied the effect of the COVID-19 pandemic on the lower middle class in an urban city in terms of household behavior; notably spending, savings, and investment. The research was conducted using a survey administered through a structured questionnaire during June and July 2022, employing a random

sampling method for data collection. The study's findings reveal that individuals' lifestyles, spending habits, saving, and investing behaviors have changed significantly, suggesting a permanent shift in how people prefer to use their income during the pandemic. Additionally, Loko et al. (2022) examined the impact of the COVID-19 pandemic on private savings in Sub-Saharan Africa (SSA). The study utilized unbalanced panel data analysis for 31 SSA economies, conducted a descriptive analysis of household surveys during the pandemic, and examined historical macro trends and stylized facts regarding private savings in SSA. The findings show that COVID-19 deaths are highly related with a decrease in private savings in SSA during the pandemic.

Guo et al. (2022); Loko et al. (2022); Tiwari and Tomer (2022) show that the COVID-19 pandemic has a negative and significant influence on the savings of individuals during the pandemic. The studies indicate that the shock and death tolls of the pandemic significantly contributed to the reduction in savings patterns of people during the pandemic.

Conversely, Rafinda and Gal (2022) examine the changes in household financial behavior during the pandemic. In this study, the author utilized the quantitative approach of an online questionnaire with 635 respondents from Indonesia. The findings demonstrate that spending and insurance behavior remained constant during the pandemic, whereas saving and investment behavior grew significantly. Additionally, the study results conclude that the pandemic taught people a lesson that they need to invest and save to survive for an unforeseen situation. Similarly, Borowski and Jaworski (2023), examined the determinants of compulsory household savings in 16 European Union (EU) member nations in 2020 during the COVID-19 pandemic in the state using the random-effects and fixed-effects panel model. The study shows the higher severity of COVID-19, government restrictions, and financial support lead to higher savings. Additionally, the study indicates that savings behaviors and human capital quality help people comply with

pandemic-related constraints while also improving their ability to cope with the pandemic's hardship. They observe that these attributes had a positive impact on compulsory savings. Furthermore, Ercolani et al. (2021) focused on the post-pandemic effects of COVID-19 on households' savings in Italy. The study utilized the Bank of Italy's Special Survey of Italian Households, demographic variables, and job status in regression analysis. The results show that the pandemic has increased the level of precautionary savings and job uncertainty and fear of a new pandemic has influenced savings behaviors in the post-pandemic.

Borowski and Jaworski (2023); Ercolani et al. (2021); Rafinda and Gal (2022) demonstrate that the COVID-19 pandemic has a positive influence on household saving behaviors. The studies show that the pandemic has increased the compulsory savings for unforeseen or precautionary situations.

Further, Jin et al. (2021) examined why the COVID-19 pandemic facilitates consumers' preference between savings and spending. They conducted two online surveys in February and August 2020 consisting of 1,511 and 466 participants respectively and the hypotheses were tested using a bootstrapping and stepwise regression analysis. The findings of the first survey indicated a positive and significant connection between the severity of emergencies and individuals' willingness to save rather than spend. This propensity is affected by the perception of risk, which acts as a mediator between the severity of emergencies and saving behavior. However, the second survey showed a reduction in these impacts in the post-pandemic period. Szustak et al. (2021) analyzed the effects of the pandemic on the households' finances in Poland, compared to other CEE countries. The paper laid more concerns on variations in the level of households' savings, using the multiple linear regression approach to determine factors influencing savings such as unemployment level, consumer confidence index, and GDP. The findings show that elements

influencing household savings vary among CEE countries and highlight that assessing household savings during the pandemic is ambiguous. The study concluded that individuals with higher financial knowledge are more likely to have greater savings, whereas low-income households typically lack sufficient savings to endure challenging circumstances.

Additionally, Nirmala et al. (2022) studied the impact of the pandemic on the savings and investment patterns of the manufacturing sector in India. The study analyzed the savings and investment decisions of people in the manufacturing sector before and after the COVID-19 pandemic, using a convenience sampling of 225 employees. The findings indicate that changes in lifestyle and the uncertainty in income influenced the savings behavior of people in the manufacturing sector during the pandemic. Additionally, the study observed changes in savings and investment in the post-pandemic.

In summary, the literature review indicates the effect of the COVID-19 pandemic on household savings behavior performed in various regions and contexts. Several studies that looked into the situation such as Borowski and Jaworski (2023); Guo et al. (2022); Rafinda and Gal (2022), show that the pandemic has a greater positive and significant effect on saving as compared to other behaviors among individuals, due to enhanced risk perception and government constraints and also for their support. Nevertheless, some studies, in particular by Loko et al. (2022); Tiwari and Tomer (2022) have claimed a negative and significant effect of the pandemic on saving behavior where the increase in COVID-19 deaths has led to the decrease in private savings in Sub-Saharan Africa. Jin et al. (2021) reveal the psychological mechanisms behind the savings behavior during the pandemic, especially the dealing with risk perception. Similarly, Ercolani et al. (2021); Szustak et al. (2021) offer a distinctive viewpoint on factors determining household savings across

different countries, emphasizing the importance of financial knowledge, job uncertainty, and precautionary motives.

Nevertheless, a notable gap in the literature is the long-term analysis of the saving behavior in households pre-pandemic, during the pandemic, and after the pandemic. Although some researchers have provided data concerning the modifications in savings habits during the pandemic, such as Jin et al. (2021); Rafinda and Gal (2022), there has been a lack of research about the sustainability or reversibility of these consequences in the post-pandemic period. Additionally, there is a need for a careful examination of the role of the pandemic on savings behavior across demographic groups, income levels, and regions, especially less developed regions like Africa. Future studies could also benefit from focusing on the kinds of policy interventions and the behavior of the society and culture needed to shape household savings behavior during and after the pandemic. Therefore, this research will examine the role of the pandemic on savings behavior in the OIC member countries in Africa.

2.2.2 COVID-19 Pandemic and Digitalization of Financial Transactions

Numerous empirical studies have explored the impact of the COVID-19 pandemic on digitalization of financial services and transactions, utilizing various methodologies and datasets. Bongomin et al. (2023) studied the effect of wireless digital finance innovation, specifically mobile money, on the accessibility and utilization of financial services among economically deprived citizens during the COVID-19 pandemic. The research employed a structural equation mediation method with Bootstrap using 2,737 valid responses from underdeveloped economies to analyze the data. The findings indicate that wireless digital financial innovation improves access to and usage of financial services in underdeveloped economies during the pandemic. Also, the study

shows that the usage of e-digital financial innovation has positively advanced during the pandemic. Similarly, Dluhopolskyi et al. (2023) examined the effect of the COVID-19 pandemic on digital financial inclusion using an integral digital financial inclusion (DFI) index based on Global Findex Database indicators 2021. The study utilized a linear mathematical model of the integrated indicator and used the Fishburn formula to determine the weight coefficients of the DFI index. The findings show that the pandemic accelerated DFI in 2021. However, the study showed significant differences in DFI between nations based on their income level and financial inclusion issues of the disadvantaged group of the population, especially in the developing countries. Both studies underscore that the use of Digital Financial Inclusion for financial service delivery has greatly increased in several countries during the pandemic. These studies also show that the pandemic also played a role in increasing financial inclusion among people who are poor and vulnerable in society.

In a related context, Bousrih (2023) investigated the impact of digitalization of banking and financial services on banks' performance pre-pandemic. The study used the FINTECH database for 24 countries from the Bank for International Settlements (BIS) and World Development Indicators sources. The data starting from 2012 to 2019 was considered. The findings reveal that cashless transactions and mobile banking services are strongly and positively related to banks' return on assets (ROA). The study shows that mobile banking subscribers positively influence banks' performance. Complementing this, N. R. Kalita (2023) studied the impact of the pandemic on the digitalization of the financial sector through a survey of customer's digital financial transaction services. The article focused on the rise in financial services through electronic means in developing countries, particularly in West Africa, as a result of the pandemic. Additionally, it highlighted that FINTECH is vital in ensuring financial inclusion and access to

credit facilities, investments as well as government transfers. This finding demonstrates that COVID-19 interferes with the finance sector and the digitalization of financial services has mitigated its impact. Similarly, Istifadhoh et al. (2021) using an in-depth literature study with qualitative descriptive analysis techniques approach, examined how Sharia FINTECH can help speed up economic recovery during pandemics. The findings revealed that Sharia FINTECH has positively impacted the national economy recovery in Indonesia. These studies highlighted the importance of digitalization of financial services in the financial sector. The results of the studies indicated that digitalization of financial services has helped improve banks' performance both pre and post-pandemic.

Kazeem et al. (2021) focused on the impact of the pandemic on cashless transactions in Nigeria. The study adopted a Random Sampling Technique and involved selection of two hundred and fifty (250) customers from five major banks in Lagos State, Nigeria. The data obtained from the respondents through a well-constructed questionnaire was analyzed by employing descriptive statistics and chi-square test. The findings showed that people preferred e-transactions and used ATMs (Automated Teller machines), Point of Sales (POS), and Electronic Fund Transfer Systems to handle their finances during the pandemic. Furthermore, the analysis revealed that the usage of cashless transactions in Nigeria has increased significantly after the pandemic, and a high number of e-transactions were noted. In a broader business context, Soto-Acosta (2020) identified whether and how the digital transformation in businesses is hastened by the COVID-19 pandemic. In the context of the COVID-19 pandemic, the study also addresses the distinction between digital transformation and digital change. Digital transformation is not only about utilizing technologies to undergo a shift in business but also identifying suitable digital tools and channeling them in a manner that reduces dependency on other resources and increases efficiency. The findings show

that the pandemic has greatly facilitated accelerating digital transformation to prevent total economic disaster.

Further, Burlea-Schiopoiu et al. (2023) examined the factors that accelerate the digital transformation process in the COVID-19 pandemic. partial least squares structural equation modeling (PLS-SEM) and the bootstrapped method to assess the model fit, using data from 203 employees responsible for decision-making regarding the digital transformation strategy within their organizations undergoing a digital transformation process. The results indicated that firms, irrespective of their size, profile, or industry, are impacted by the changes brought about by new technologies and the crisis triggered by COVID-19. Also, the study concluded that the pandemic positively and directly influenced the implementation and advancement of a digital transformation strategy and new technologies within the organizations during the pandemic. Similarly, Mansour (2022) analyzed whether the government has promoted digitalizing financial transactions to enhance economic activity and attain better financial inclusion during the COVID-19 epidemic. The paper used the logit model to assess government effectiveness, the effect of the number of commercial banks, level of income and GDP per capita, digital adoption, and the pandemic-related closure of businesses and stores due to full lockdowns on governments' policy response regarding digitalization of financial transactions during the pandemic. The results showed that low- and middle-income nations had significantly addressed the surging requirement for digital means of payment during the pandemic in comparison to upper-middle-income and high-income nations. Furthermore, the study indicated that the number of commercial banks and government effectiveness were positively related to the government policy response.

Lastly, Siregar (2021) explored "the impact of economic digitization on economic growth in Indonesia, especially during the COVID-19 pandemic". The author made use of descriptive

qualitative research methods using different forms of materials such as international and national journals and websites that are trusted. The findings indicated that the pandemic has made a positive and significant influence on the advancement of the digital economy as it has accelerated the adoption and integration of technology in everyday economic activities of people such as shopping. This is evident in the increase in electronic transactions, which rose from Rp. 145.2 trillion in 2019 to Rp. 204.9 trillion in 2020, marking a significant increase of 41.2%.

The literature reviewed presents a comprehensive understanding of how pandemic has affected the digitalization of financial transactions offering valuable perspectives from varied regions and contexts. Several studies that looked into the situation such as Bongomin et al. (2023); Dluhopolskyi et al. (2023) noted that the pandemic had hastened digital financial inclusion and innovation in low-income countries, thereby contributing to improved access to finance and facilitation of financial services provision. Similarly, researchers like N. R. Kalita (2023); Siregar (2021) highlight the favorable role of digitization in mitigating economic fallout inflicted by the coronavirus pandemic with a notion that technology enhances payment systems for inclusive finance, particularly in developing nations. Additionally, studies by Burlea-Schiopoiu et al. (2023); Mansour (2022) have emphasized that the pandemic has brought about internal changes to strategy planning for organizational digital transformation and government policy action to promote cashless transactions.

Nevertheless, there is a huge gap in the literature because no research has sought to examine the long-term impacts of the COVID-19 pandemic on digital financial transactions. For example, Kazeem et al. (2021); Soto-Acosta (2020) show the immediate impacts of the pandemic on cashless transactions and digitization efforts, but lack studies that examine future consequences and sustainability aspects. In addition, comparative studies across income levels, regions, and

sectors are necessary for understanding how digitalization efforts and financial inclusion strategies have been affected by COVID-19 in different places with different economies. Hence, post-pandemic regulation frameworks, development of infrastructure, and public-private partnerships can be topics for further research concerning resilient inclusive digital finance ecosystem development.



Chapter Three

Research Methodology

This section presents the methodology employed in the research. It covers the research design and sampling methodology, data collection methods and their sources, statistical tools, and variable measurement, including dependent and independent variables. Also, it outlines the analysis of data and the methods employed for data analysis.

3.1 Research Design

This research employed a quantitative methodology, focusing on the analysis of financial data. The study utilized data from secondary sources, specifically utilizing the World Bank Global Findex database between 2011 and 2021. It is available to examine the effect of the COVID-19 pandemic on Financial Inclusion, Digital Payments, and Resilience due to its broad coverage of questions. This timeframe was chosen based on data availability. In this study, data analysis involved descriptive statistics and regression analysis. The study utilized OLS regression model to examine the connection between the dependent and independent variables. Additionally, the various analyses were conducted using the STATA statistical software.

3.2 Research Sampling

The stratified random sampling techniques were used to select individuals in OIC countries based on factors including geographical location, population density, and economic development level. The sampling frame for this survey consists of individuals living or operating within the selected regions in the OIC member countries in Africa. The total number of selected sampling regions was 17 countries in the OIC countries in Africa. The purpose of research sampling is to

obtain reliable and valid results that can be categorized to the larger population. This is crucial in minimizing sampling bias and ensuring the external validity of the research findings.

3.3 Method of Data Collection

For this research, the researcher used data from the Global Findex survey, conducted by the World Bank. The survey revolves around how adults worldwide utilize financial services, encompassing various aspects such as payments, savings, borrowing, and handling financial events like significant expenditures or income loss. The first survey was conducted in 2011 and consecutively in 2014, 2017, and 2021. The latest version of the survey conducted in the year 2021 was based on nationally representative samples of around 128,000 adults across 123 countries during the COVID-19 pandemic. The survey includes new indicators on access to and use of formal and informal financial services, including the use of cards, mobile phones, and the Internet to make and receive digital payments during the pandemic. Additionally, it provides insights into the behavioral patterns suitable for fostering financial resilience. This study utilizes comprehensive data sources and focuses on financial inclusions. Its goal is to provide valuable insights for stakeholders, practitioners, and researchers in understanding the impact of the COVID-19 pandemic on saving behaviors and the digitalization of financial services and transactions in OIC member countries in Africa.

3.4 Variables Description

3.4.1 Financial Institution Account Ownership

This variable is measured using the following question: “Did you have an account at a bank or at another type of financial institution, such as a credit union, a microfinance institution, a cooperative, or the post office (if applicable), or has a debit card at a financial institution?” The

responses is binary, with a value of 1 indicating “having an account at a financial institution or a debit card”, and 0 indicating “the respondent did not have a financial institution account”.¹ This variable is important in this study to identify the growth and development of financial institution accounts in the OIC member countries in Africa before and during the pandemic.

3.4.2 Mobile Money Account Ownership

The respondents’ Mobile money account ownership status is determined by asking the following question: “Did you use mobile money services to pay bills or to send or receive money in the past year?” This variable represents whether an individual owns a mobile money account. The variable is binary, with a value of 1 indicating that the respondent used mobile money services to pay bills or to send or receive money in the past year”, and 0 indicating “the respondent did not use a mobile money account”.² The variable allowed the researcher to measure the level of digitalization of financial services in the OIC member countries in Africa before and during the pandemic.

¹ The data also include an additional 3 percent of respondents in 2021 who reported receiving wages, government transfers, a public sector pension, or payments for agricultural products into an account (excluding mobile money) in the past year; paying utility bills or school fees from a financial institution account in the past year; or receiving wages, government transfers, or agricultural payments to a card in the past year. The definition does not include non-bank financial institutions such as pension funds, retirement accounts, insurance companies, or equity holdings such as stocks. Questions screened for account ownership in the questionnaire do not include these additional 3 percent of respondents.

² Mobile money service providers are those included in the GSM Association’s Mobile Money for the Unbanked (GSMA MMU) database. The data also includes an additional 2 percent of respondents in 2021 who received wages, government transfers, a public sector pension, or payments for agricultural products through a mobile phone in the past year. Unlike the definition of account at a financial institution, the definition of mobile money account does not include the payment of utility bills or school fees through a mobile phone. The reason is that the phrasing of the possible answers leaves it open as to whether those payments were made using a mobile money account or an over-the-counter service.

3.4.3 Savings

Savings are important aspect of this research. The variable is measured by asking the following questions: “Did you personally saved or set aside money in the past year, including using an account at a financial institution, via a mobile money account, a savings club or person outside the family, or for any reason?” The variable is binary, with a value of 1 indicating “respondent saved”, and 0 indicating “the respondent did not save”. In this research, this variable is utilized to measure the savings patterns and behaviors of households during the COVID-19 pandemic. Furthermore, it is used to examine the impact of the pandemic on the savings behavior of households in the OIC member countries in Africa.

3.4.4 Indebtedness

To measure the level of indebtedness, the respondents are asked the following question: “Did you personally or together with someone else, borrow money in the past year, including from a bank or similar financial institution, via a mobile money account, from family or friends, or from an informal savings group, or for any other reason?” The variable is binary, with a value of 1 indicating “respondent borrowed”, and 0 indicating “the respondent did not borrow”. The variable indicates the level of borrowing over time.

3.4.5 The use of the digital financial services

In the survey, there is a question which indicates the rate of people who make or receive a digital payment. The respondent experience with digitalization of financial services is measured with the following questions: “Did you make or receive a digital payment using mobile money, a debit or credit card, or a mobile phone to make payments from an account, using the internet to pay bills or make purchases online or in-store, and paying bills or sending and receiving

remittances directly to or from a financial institution account or via a mobile money account within the past year”. In this study, the variable is utilized to measure the level of digitalization of financial transactions in the OIC member countries in Africa in the past year. Also, it is used to analyze the influence of the pandemic on the digitalization of financial transactions in the OIC member countries in Africa. The variable is binary, with a value of 1 indicating “the respondent made or received digital payment”, and 0 indicating “the respondent did not make or receive digital payment”.

3.5 Data Analysis Techniques

In this study, in order to examine the impact of the COVID-19 pandemic on the savings behavior and digitalization of financial services and transactions, data collected from the Global Findex database were analyzed using STATA statistics software.

3.5.1 Descriptive Statistics

It offers a method to organize, analyze, and present data in a clear and comprehensible way. This includes measures of central tendency (mean, median, mode), measures of dispersion (range, variance, standard deviation), and measures of shape (skewness, kurtosis). It helps in understanding the features of the data, identifying patterns, and making comparisons between different groups or variables. In this study, descriptive statistics were analyzed using STATA to gain insights and draw conclusions from data.

3.5.2 Regression Analysis

In this study, regression analysis was conducted to know the impact of the pandemic on savings patterns and digitalization, while considering the potential moderating impact of age,

gender, and education level. Also, the impact of the pandemic was conducted on financial account ownership, mobile account ownership, and level of indebtedness, while considering the potential effect of age, gender, and education level. Furthermore, the OLS logistic regression models was used to analyze the changes in savings patterns of households and the digitalization of financial transactions before and after the pandemic. Logistic regression models was used to estimate the relationships involving the binary *Fin_Acct*, *Acc_Mob*, *Digital_Payment*, *Savings*, and *Indebtedness* dummy variables, which serve as the dependent variables in our analysis (Uğur & Durak, 2024).

Model Specification $\text{logit}(P(Y=1)) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where: Y = Dependent variable (dummy variable)

β_0 = Constant; the value Y assumes when the independent variable is zero

β_1, β_2 and β_3 = Intercepts; the rate of change in Y

X_1, X_2 and X_3 = the independent variables

ε = error terms

The model is further modified into five equations

Fin_Acct $i,t = \beta_0 + \beta_1 \text{Pandemic} + \beta_2 \text{Male} + \beta_3 \text{Age} + \beta_4 \text{Edu} + \beta_5 \text{Age_Squared} + \varepsilon \dots\dots\dots 1$

Acc_Mob $i,t = \beta_0 + \beta_1 \text{Pandemic} + \beta_2 \text{Male} + \beta_3 \text{Age} + \beta_4 \text{Edu} + \beta_5 \text{Age_Squared} + \varepsilon \dots\dots\dots 2$

Digital_Payment $i,t = \beta_0 + \beta_1 \text{Pandemic} + \beta_2 \text{Male} + \beta_3 \text{Age} + \beta_4 \text{Edu} + \beta_5 \text{Age_Squared} + \varepsilon \dots\dots 3$

Savings $i,t = \beta_0 + \beta_1 \text{Pandemic} + \beta_2 \text{Male} + \beta_3 \text{Age} + \beta_4 \text{Edu} + \beta_5 \text{Age_Squared} + \varepsilon \dots\dots\dots 4$

Indebtedness $i,t = \beta_0 + \beta_1 \text{Pandemic} + \beta_2 \text{Male} + \beta_3 \text{Age} + \beta_4 \text{Edu} + \beta_5 \text{Age_Squared} + \varepsilon \dots\dots\dots 5$

The dependent variable, represented as '*Savings*', indicates a dummy variable denoting whether individual '*i*' saved in the year '*t*'. Similarly, '*Digital_Payment*' represents a dummy variable denoting whether individual '*i*' utilized the use of digitalization in financial transactions in the year '*t*'. Similarly, '*Fin_Acct*' represents a dummy variable denoting whether individual '*i*' owned a financial institution account in the year '*t*'. Similarly, '*Acc_Mob*' represents a dummy variable denoting whether individual '*i*' owned a mobile money account in the year '*t*'. Similarly, '*Indebtedness*' represents a dummy variable denoting whether individual '*i*' borrowed in the year '*t*'. The variable '*Pandemic*' was introduced as a dummy variable that takes the value 1 to represent the years 2021 and 2022 representing the year after the pandemic, and 0 for the year before.

By keeping the intercept constant, the study controls for other possible factors that might affect the dependent variables, enabling a more focused examination of the association with the pandemic. The study used statistical analysis to discover a significant association between the pandemic and the dependent variables in the OIC member countries in Africa. A statistically significant association suggests that the pandemic has a measurable impact on the dependent variables. However, if there is no significant relationship then it might indicate that COVID-19 does not have a meaningful impact on the dependent variables.

Moreover, diagrams and graphs will be used to portray patterns and trends contained in the dataset to make it easier for people to understand how COVID-19 affects savings behaviors among individuals and also financial transactions' digitalization in OIC member nations in Africa. Hence this approach enables qualitative data analysis with flexibility and rigor allowing researchers to explore the intricacies of phenomena and delve into numerous perspectives and experiences of participants.

Chapter Four

Data Analysis and Interpretation

In this section, the data analysis, presentation, and interpretation of the research findings are presented depicting the results of the study. This chapter is presented in the following sections. First, descriptive statistics is given in examining the summary statistics of the data such as the average, and standard deviation among others. Second, the regression analysis is presented to show the connection between the variables.

4.0 Descriptive Statistics

Table 1: Descriptive Statistics Results

Variables	Pre-Pandemic	Post-Pandemic	Total
Financial Acct. Own	0.2388 (0.4264)	0.3266 (0.4690)	0.2638 (0.4407)
Mobile Acct. Own	0.1913 (0.3933)	0.3589 (0.4797)	0.2389 (0.4264)
Digital Payment	0.0464 (0.2104)	0.4750 (0.4994)	0.1682 (0.3740)
Savings	0.5216 (0.4995)	0.5577 (0.4967)	0.5318 (0.4990)
Indebtedness	0.3658 (0.4817)	0.5606 (0.4963)	0.4211 (0.4937)
Age			35.117 (14.202)
Education level			1.5 (0.600)
Male			0.535 (0.499)
Pandemic			0.284 (0.451)

For both pre- and post-pandemic situations combined, about 26.38% of the people had an account in financial institutions with a standard deviation of 44.07%. Before the pandemic, from 2011 – 2017, only about 23.88% of respondents had a financial account, with a standard deviation of 42.64%, indicating considerable variability in this measure. The pandemic, however, caused a change in this percentage to 32.66% with a slightly higher standard deviation of 46.90%. This rise may reflect the fact that there is an increased need for financial services such as savings and

banking at times of economic uncertainty which has forced more people to open accounts. The data points to trends towards greater levels of financial inclusion in OIC member countries in Africa.

Before the pandemic, approximately 19.13% of respondents had a mobile money account, with a high standard deviation of 0.39 when compared with the mean value, indicating variation in the levels of mobile account ownership among the respondents. However, after the pandemic, this percentage increased sharply to 35.89%, with a higher standard deviation of 0.47. This indicates that there has been a significant increase in mobile money account ownership after the COVID-19 pandemic. When considering the pre-pandemic as well as post-pandemic data together, it is observed that about 23.89% of respondents possessed a mobile account with a standard deviation of 0.42. This means that nearly one out of four respondents had a mobile account. The substantial increase in the ratio of respondents with mobile money accounts refers to the widespread acceptance of digital financial services in OIC's African member countries. This increase in the acceptance of digitalization has been caused by the need for social distancing due to the COVID-19 pandemic, a rising understanding of digital payment alternatives, and the ease of using phones for conducting financial transactions are believed to have driven these changes.

Similarly, the digital payments usage rate was roughly 4.64% before the pandemic, with a high standard deviation of 21.04%, implying that respondents had scarcely embraced it though their levels of use varied widely. Nevertheless, this percentage rose to 47.50% during and after the COVID-19 pandemic, accompanied by a higher standard deviation of 49.94%, which signifies that most respondents have started using digital payment methods in the post-pandemic period and at different frequencies. The significant increase of 45.3% in the proportion of respondents using digital payments after the pandemic reflects a heightened reliance on digital channels for financial

transactions due to factors such as social distancing measures, lockdowns, and a shift towards contactless payment methods during the pandemic. The statistics indicate a significant boost in digital payment users among respondents, implying that there has been a remarkable transformation from conventional financial services towards digital financial transactions and services in the OIC member countries in Africa, especially after the pandemic.

In total, when considering both pre-pandemic and post-pandemic data together, about 53.18% of respondents had savings with an average deviation of 49.90%. This indicates that a little over half of the respondents had savings over 2011-2022. Similarly, before the pandemic, around 52.16% of respondents reported having savings with a standard deviation of 49.95%. After the pandemic, this percentage rose to 55.77%, with a standard deviation of 49.67%. The slight increase in this proportion suggests that the importance of being financially prepared and resilient during times of extreme uncertainty became more pronounced after the COVID-19 pandemic making many individuals more interested in savings as a precautionary strategy.

Before the pandemic, roughly 36.58% of respondents had debts with a standard deviation of 48.17%, showing that the variability in debt levels among the respondents was relatively high. However, post-pandemic outbreak, this percentage increased to 56.06% and a high standard deviation of 49.63%. This implies that there has been a high number of people incurring debts among the population during this period compared to before the pandemic times. The 20% proportion of those who have debts after the COVID-19 pandemic can be due to economic shocks and financial difficulties caused by the coronavirus. For instance, loss of jobs, reduction in incomes, and increased borrowing for payment or financial misfortune are some of the factors that could have contributed to the large proportion of indebtedness after the pandemic.

The study also gives some descriptive statistics about the participants of the survey. The mean age of the respondents is 35 years, with a standard deviation of 14 years. Furthermore, the education level of the respondents on average is approximately 2, with a standard deviation score of 0.6. This means that on average respondents completed secondary education with some variations regarding their educational attainment. Besides, males constitute 53.5% while females comprise 46.5% of the sample.

Figure 1: The Indicators of Financial Inclusion over Time

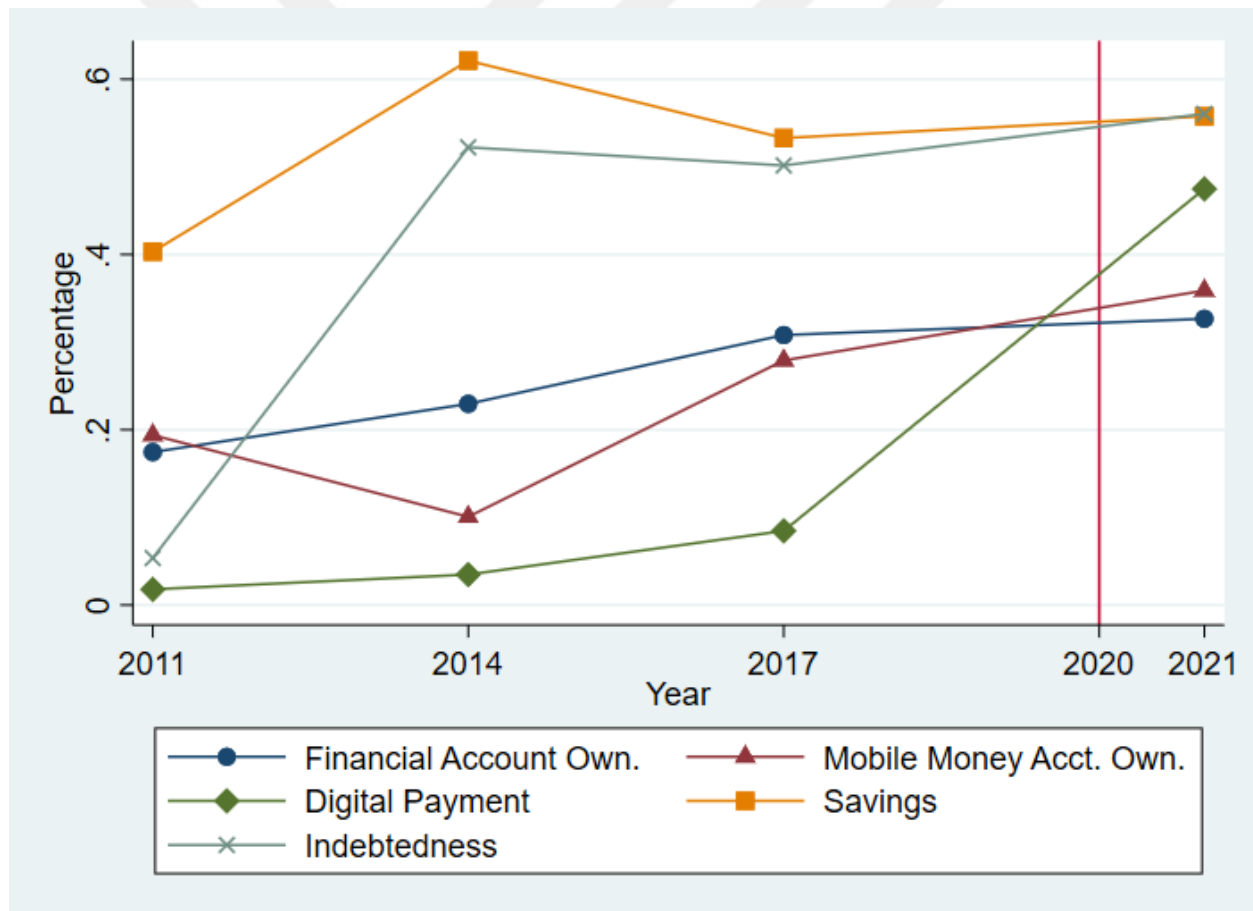


Figure 1 above, shows the percentage and trends in various financial activities for the period of 2011 – 2021. There is a slight rise in the rate of individuals who have accounts with financial institutions. It can be noted that between 2011 and 2014, there was a huge rise in the debt level among people living in this region. Additionally, digital payment for financial services and transactions has risen significantly and ownership of mobile money accounts. In 2021, there was a high increase in the use of digital payment and owning mobile money accounts.

Overall, from 2011 to 2021, there is an increase in the proportion of individuals with financial accounts, mobile money accounts, savings, and digital payments usage. Notably, digital payments use have risen abruptly from 2017 to 2021 showing a transition towards increased use of digital financial transactions over time. Additionally, there is a significant rise in the level of savings among individuals in the OIC member countries in Africa. However, in 2017, there was a significant fall in the level of savings and in 2021, there is a slight rise in savings.

Conversely, the proportion of individuals with indebtedness remains relatively stable across the years, with a slight increase observed in 2021. This suggests that while more individuals are getting involved in multiple financial activities, debt levels have experienced just a slight growth within this same period. Overall, the graph highlights the evolving landscape of financial behaviors and inclusion, with a notable transition toward digital payment methods over the years.

4.1 Regression Analysis

Table 2: Regression Results 1

	(1)	(2)	(3)	(4)	(5)
	Fin_Acct	Mob_Acct	Dig_Payment	Savings	Indebtedness
Post-Pandemic	0.070*** (0.00)	0.152*** (0.00)	0.418*** (0.00)	0.023*** (0.00)	0.191*** (0.00)
Age	0.02*** (0.00)	0.01*** (0.00)	0.003*** (0.00)	0.02*** (0.00)	0.01*** (0.00)
Age Squared	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Male	0.016*** (0.00)	0.009*** (0.00)	-0.033*** (0.00)	0.009*** (0.00)	0.005 (0.00)
Educ.	0.250*** (0.00)	0.17*** (0.00)	0.109*** (0.00)	0.147*** (0.00)	0.037*** (0.00)
R-squared	0.1298	0.0924	0.2985	0.0414	0.0379
n	51,680	51,680	51,680	51,680	51,680

“Notes: Robust standard errors are given in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01,”

“All models control for age, gender, and education level (categories: primary school or less, secondary school or equivalent, high school or equivalent, university or more)”.

According to Table 1, in model 1, the post-pandemic dummy variable is positively related with the financial account ownership, which implies that the level of account ownership in financial institutions rose by 7% after the pandemic. This impact is statically significant at a 1% significance level. Similarly, in models 2, the pandemic has positively and significantly impacted mobile money account ownership. This result shows that the pandemic has caused a 15.2% rise in financial account ownership, mobile money account, and indebtedness respectively. According to Model 3, a higher percentage of digitalization of financial services and transactions use after the pandemic even controlling for the impact of age, gender, and education level was observed. This result shows a 41.8% increase in the adaptation to digital financial services, which is statistically

significant at a 1% significance level. Additionally, in model 4, the post-pandemic dummy variable is positively associated with the level of savings, which implies that the level of savings rose by 2.3% after the pandemic. This impact is statically significant at a 1% significance level. Also, in model 5, the pandemic has positively and significantly impacted level of indebtedness. This result shows that the pandemic has caused a 19.1% rise in level of indebtedness. The post-pandemic coefficient is statistically significant at a 1% significance level. The regression results suggest significant changes in financial behavior during and after the pandemic. The positive impact of the pandemic variable across all models means that different financial activities including savings, digital payments, mobile money accounts' ownership and indebtedness increased after pandemic period compared to before in the OIC member countries in Africa.

Additionally, being male has a statistically significant positive effect on the likelihood of savings, financial account ownership, mobile money account ownership and indebtedness level implying that men engage more in savings than their female counterparts thus having more financial accounts than females. However, males' adaptation to digital payments is lower than females according to model 3.

Furthermore, education level shows a statistically significant positive association with all the dependent variables. These results show that higher levels of education are associated with an increased likelihood of engaging in savings, digital payments, financial account ownership, mobile money accounts' ownership, and indebtedness in the OIC member countries in Africa.

Additionally, age has a positive and statistically significant impact in all the models, suggesting that older people are more likely inclined to involve in owning a financial account, a mobile money account, digital payments, and savings and be indebted compared to younger individuals.

Furthermore, the significant positive coefficients for age, male dummy variable, and education level indicate their respective influences on financial behavior. Older individuals, males, and those with higher education levels are more likely to engage in various financial activities both during and after the pandemic. This suggests that these demographic factors play crucial roles in shaping financial decisions and behaviors, regardless of the pandemic's influence.

When these indicators are combined overall, the results show indeed a very high increase in indebtedness and usage of digital financial transactions and services after the pandemic.

The R-squared values of every model show which fraction of the dependent variable's variation is explained by independent variables. Model 3 has the highest R-squared value of 0.299 which indicates that the independent variables accounted for almost 30% of variation in digital transaction usage. Model 5 has the lowest R-squared value of 0.038, indicating that the independent variables account for approximately 4% of the changes in indebtedness. Furthermore, the low R-squared values are expected, as they are commonly observed with binary models. In binary response models, pseudo-R-squared measures are used to assess the explanatory power of the model. If the estimated variables are close to 0, the pseudo-R-squared will also be 0. This is similar to the R-squared value in the OLS model, where a value of 0 indicates that the estimated variables are not significantly different from 0 (ÖZATA et al., 2023).

Overall, the findings show that the pandemic has actually affected financial activities significantly throughout the OIC nations in Africa as a result of individuals adapting to the new conditions brought by the pandemic.

Table 3: Regression Results 2

	(1)	(2)	(3)	(4)	(5)
	Fin_Acct	Mob_Acct	Dig_Payment	Savings	Indebtedness
Post-Pandemic	0.129*** (0.00)	0.211*** (0.00)	0.476*** (0.00)	0.054*** (0.00)	0.221*** (0.00)
Age	0.02*** (0.00)	0.01*** (0.00)	0.003*** (0.00)	0.016*** (0.00)	0.01*** (0.00)
Age_Squared	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)
Male	0.05*** (0.00)	0.04*** (0.00)	0.000*** (0.00)	0.027*** (0.00)	0.022*** (0.00)
Pandemic_Male	-0.116*** (0.00)	-0.115*** (0.00)	-0.112*** (0.00)	-0.061*** (0.00)	-0.059*** (0.00)
Educ.	0.245*** (0.00)	0.164*** (0.00)	0.103*** (0.00)	0.145*** (0.00)	0.034*** (0.00)
R-squared	0.1332	0.0960	0.3030	0.0421	0.0386
n	51,680	51,680	51,680	51,680	51,680

“Notes: Robust standard errors are given in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01,”

“All models control for age, gender, and education level (categories: primary school or less, secondary school or equivalent, high school or equivalent, university or more)”.

Additionally, this study introduces an interaction variable, which is the pandemic period and being male to be able to analyze whether the pandemic’s impacts are particularly on one gender or not. The results shown in Table 2 indicate that the pandemic’s impact on account ownership was particularly positive for women as the interaction term of male dummy variable and the pandemic dummy variable is negative in Model 1. The same result applies to all other dependent variables as the interaction term of male dummy variable and the pandemic dummy variable is negative across all models. Interestingly, the probability of saving is particularly less likely for

males and also the probability of borrowing is also particularly less likely for females. That is, pandemic increased particularly women's indebtedness.

These findings highlight a gender differential in the financial impacts of the pandemic, indicating that the female benefited more from the impacts of the pandemic. This result is expected since males were financially more embedded in the financial system than women. As the pandemic increased the need for financial services use even for ordinary people, naturally women benefited more from the pandemic with regards to financial embedded.

Chapter Five

5.0 Discussion

The findings of this study show that there has been a 2.3% increase in the level of savings in the OIC member countries in Africa after the pandemic. This indicates that a small group of people in this region have heightened their awareness of the importance of financial resilience and preparedness for future economic uncertainties. This result aligns with the findings of some studies that show an increase in the level of savings in the pre-pandemic period. Borowski and Jaworski (2023); Ercolani et al. (2021); Rafinda and Gal (2022) show that the saving cultures of people in terms of planning for future economic uncertainties have increased in the pre-pandemic period in the EU, Italy, and Indonesia respectively. Additionally, Manshani et al. (2022) show that the pandemic forced households to start saving money for their well-being and future economic uncertainties in India.

In the context of Islamic finance, the emphasis on financial stability and ethical investment aligns with the observed increase in savings. Islamic finance principles encourage saving and prudent financial management as part of a broader framework of economic justice and risk management. The results show that the pandemic has likely reinforced these values, prompting individuals to adhere more closely to financial behaviors that are consistent with Islamic teachings on economic responsibility.

In addition, the findings reveal the COVID-19 pandemic caused a 41.8% rise in the use of digital payment and digitalization of financial transactions in the OIC member countries in Africa. This indicates a rapid acceleration to remote and digital financial transactions, caused by social distancing measures and the need for safe and convenient payment methods. Some other studies

also indicate a high acceleration in the adoption of digitalization of financial services. D. N. R. Kalita (2023) shows that the value of digital payments has increased with the number of users in West African countries such as Ghana, and Nigeria among others. Bongomin et al. (2023); Dluhopolskyi et al. (2023) also show that the use of digital financial inclusion for financial service delivery has risen significantly in several countries such as Uganda, Poland, and Ukraine during and after the pandemic. Additionally, Kazeem et al. (2021) indicate that contactless transactions have greatly increased in Nigeria after the pandemic. Also, Siregar (2021) shows that the pandemic accelerated the development, adoption, and integration of technology in the everyday economic activities of people in Indonesia.

In Islamic finance, the shift towards digitalization can be particularly transformative. It is believed that digitalization can also help simplify financial services and transactions that Islamic finance seeks, through easier and faster means that adhere to Islamic principles. This increase in the use of mobile money accounts and a shift towards digital payments, in general, is in line with the scope of enhancing financial inclusion and eradicating exclusions in Muslim-majority countries. Additionally, the role of digital financial inclusion (DFI) has been crucial in stabilizing the Islamic banking sector, promoting stability and reducing default risks for Islamic banks, ultimately encouraging inclusive economic growth even during crisis periods like the current pandemic (Banna et al., 2022). Furthermore, the emergence of Sharia FINTECH has positively contributed to national economic recovery during the pandemic, emphasizing the importance of strengthening government regulations to support sustainable FINTECH growth and enhance digital financial services in Indonesia (Istifadhoh et al., 2021).

Furthermore, the analysis shows that the pandemic has increased the ownership of mobile money accounts in the OIC member countries in Africa, which has increased by 15.2% after the

pandemic. This result indicates that mobile money accounts' ownership has increased the rate of financial inclusion of people in this region. Ahmad et al. (2020) reveal that mobile money accounts have contributed to financial inclusion and economic development in theory and practice in sub-Saharan Africa. Also, Apeti (2023) shows that the usage of mobile money reduces consumption volatility and therefore increases the level of financial inclusion in 76 developing countries such as Croatia, and Benin, among others. Additionally, Avom et al. (2023) result indicates a similar result as revealed in our regression result that the usage of mobile payment systems has promoted financial inclusion in African countries in a range of 12 – 14%. Lastly, Ahmad et al. (2023) reveal that mobile money has a strong effect on African countries and promotes financial inclusion as well as increases economic growth. Interestingly, the analysis reveals that this acceleration in mobile money account ownership continues in the post-pandemic period in Africa.

The increased ownership of mobile money accounts aligns with the sector's commitment to financial inclusion. During the COVID-19 pandemic, there has been a notable shift towards digital financial services, including mobile banking and mobile money accounts, in the Islamic finance sector (Hendryadi et al., 2023). Mobile money platforms can extend access to other Shariah compliant financial services, hence creating capacity for many people to participate in financial activity that is Shariah compliant. This development can assist in closing the gap between conventional banking and marginalized groups, thereby leading financial inclusion and supporting increased economic engagement and social equality.

Also, the analysis reveals the surge in the level of indebtedness among individuals in this region during and after the pandemic. This high increase in indebtedness raises concerns about the financial well-being of individuals, highlighting the vulnerability of certain segments of the population to economic shocks and disruptions. Several studies also reveal similar results. Peters

(2022) reveals that the pandemic has significantly risen the level of indebtedness among consumers in Germany, leading to a critical financial situation and highlighting the need for effective debt counseling. Additionally, Enache (2022) result shows that the pandemic has led to increased household indebtedness in Romania. Anyanwu and Salami (2021) show a high increase in government and household debt during and after the pandemic in African countries.

It should be noted that the level of savings and indebtedness are not expected to increase simultaneously since they are inversely related. However, the pandemic has impacted the increase in the level of precautionary savings for unforeseen situations for some individuals. As economic activities were restored, some individuals in this region set aside certain proportions of their income as savings for preventive purposes, which is reflected in our findings and other studies (Borowski & Jaworski, 2023; Manshani et al., 2022).

From an Islamic finance perspective, Muslims are advised to avoid unnecessary borrowing and indebtedness, emphasizing moderation, avoidance of unnecessary expenditure, and the importance of savings (Adamu et al., 2016). The rise in indebtedness during the pandemic poses a challenge as it conflicts with the principles of avoiding excessive debt and ensuring financial stability. Islamic financial institutions are encouraged to develop products and services that help manage and reduce debt burdens, promoting financial health and resilience in accordance with Shariah law. By integrating Islamic debt financing into national financial development policies, countries can create a supportive environment for new businesses and address over-indebtedness issues effectively (Sohail & Arshed, 2022).

Finally, demographic factors such as gender, education level, and age are important in determining financial behavior and results. The fact that men are more likely to save than women, have more bank accounts and mobile money accounts, and are also more likely to borrow money

indicates that there may be some gender imbalances in terms of access to finance. Furthermore, this result indicates gender imbalances in financial inclusion, which aligns with the UN SDGs Goal 5 addressing gender equality in terms of ownership of financial accounts and the use of technology to promote women's empowerment and financial inclusion. Additionally, the direct positive relationship between education level completed and each dependent variable used in this study signifies the need for financial literacy to promote responsible economic conduct among people while at the same time enabling them to make rational choices about their finances based on the information available. Furthermore, age has been found to have a significant effect mainly due to different requirements related to financial management across various stages of life; thus showing young individuals' higher propensity towards participating in various financial activities. Zins and Weill (2016) analyzing the factors that determine financial inclusion in Africa, show that being male, wealthier, older, and more educated promotes financial inclusion with a higher impact on the level of income and education. Additionally, Sanderson et al. (2018) findings reveal that education level and age are positively connected to financial inclusion in Zimbabwe.

5.1 Conclusion

This research examines the household savings patterns and digitalization of financial services and transactions in the OIC countries in Africa before and after the COVID-19 pandemic. After taking into account a large set of background controls, the result shows that the level of financial inclusion has risen significantly in the post-pandemic in the OIC member countries in Africa, especially in terms of the adoption of digital payment systems and mobile money accounts' ownership. The findings highlight a remarkable increase in savings, digital payments, financial account ownership, mobile money accounts' ownership, and indebtedness post-pandemic, indicating a dynamic response to the challenges posed by the crisis.

These findings underscore the potential of Islamic finance to leverage digital innovations and promote financial inclusion while addressing challenges related to indebtedness and demographic disparities. By aligning digital financial services with Shariah principles, Islamic finance can play a crucial role in fostering economic resilience and inclusive growth in the post-pandemic era.

The findings indicate the need for interventions directed at specific groups of people such as women as well as policies that can foster financial inclusion, literacy, and resilience among different populations. Policymakers and financial institutions must come up with ideas on how best they can improve access to finance, digital knowledge, and skills together with giving personalized financial education programs targeted towards various sections of society to address the specific needs and challenges faced by them. They also need to be aware of these shifts so that they can establish plans that help in the financial wellness and survival of individuals during hard times like the pandemic. Moreover, necessary efforts aimed at offsetting negative impacts arising from debt burdens while promoting responsible borrowing practices that are important for safeguarding the financial well-being of individuals and households should be implemented. The findings are relevant to policymakers, government agencies, financial institutions, and development organizations as they can shape their decisions that can arise while dealing with future the pandemic. Through an understanding of these problems and the information gained from the analysis, the stakeholders can therefore embark on a road to building a more inclusive, resilient, and sustainable financial ecosystem in OIC member Nations in Africa.

5.3 Recommendations

There is a need for intervention in the increased level of indebtedness as a result of the pandemic. For example, policymakers and relevant stakeholders in the Islamic Financial sector can come up with ways of controlling the increase in the levels of indebtedness among individuals as a result of the pandemic, including debt counseling services, debt relief programs, and responsible lending practices.

Also, it is evident from the findings that there is a gender disparity in terms of financial inclusion. There is a need to improve and bridge the gap of gender inequality in the usage of financial services in the OIC member countries in Africa. For instance, the government can draft gender-responsive financial inclusion policies and initiatives that address gender inequalities in access to financial services, digital technologies, and economic opportunities.

Additionally, there is a need for the promotion of financial literacy among individuals in this region about financial account ownership, digital financial services, and mobile money account ownership. The results show that some individuals in this region are still unbanked even after the pandemic. For instance, financial institutions can implement targeted financial education and literacy programs, particularly for the unbanked population.

Finally, the increase in the level of adoption and usage of digital financial services shows that financial technology (FINTECH) is evolving in this region. Policymakers can continuously promote the usage of digital financial services by investing in the necessary infrastructure, technology, and regulatory frameworks that support digital payment systems, mobile money accounts, and other FINTECH innovations.

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