Impact of COVID-19 on financial inclusion in developing countries: The case of Sudan

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Abstract

Purpose: The paper studied and analyzed the impact of COVID-19 on digital financial inclusion in developing countries focusing on Sudan during 2018-2021.

Method: It is based on the analytical descriptive approach and hypothesizes that COVID-19 was a positive catalyst for developing and promoting digital financial services in developing countries. Data were collected from the WHO, WB, IMF, and the CBOS databases.

Results: Although the COVID-19 pandemic negatively affected the economies of developing countries, it helped increase demand for digital financial services and promoted financial inclusion. The study recommends policymakers and regulators in developing countries activate partnerships between banks and telecom companies leading to removing the barriers to financial inclusion (weakness of infrastructure for digital operation, high operation cost, rigidity in KYC procedures concerning opening new bank accounts, and fear of dealing with modern Fintech).

Originality/relevance: The paper highlighted the financial services situation in developing countries and the importance of developing and benefiting from financial technology to enhance digital financial inclusion, especially in the wake of the COVID-19 pandemic.

Keywords: COVID-19, Financial Inclusion, Digital Financial Services, Developing Countries, Sudan.

Impact du COVID-19 sur l'inclusion financière dans les pays en développement : le cas du Soudan

Résumé

Objectif : Le document a étudié et analysé l'impact du COVID-19 sur l'inclusion financière numérique dans les pays en développement, en se concentrant sur le Soudan, au cours de la période 2018-2021.

Méthode : Elle est basée sur l'approche analytique descriptive et émet l'hypothèse que le COVID-19 a été un catalyseur positif pour le développement et la promotion des services financiers numériques dans les pays en développement. Les données ont été collectées à partir des bases de données de l'OMS, de la Banque mondiale, du FMI et du CBOS.

Résultats : Bien que la pandémie de COVID-19 ait eu un impact négatif sur les économies des pays en développement, elle a contribué à accroître la demande de services financiers numériques et à promouvoir l'inclusion financière. L'étude recommande aux décideurs politiques et aux régulateurs des pays en développement d'activer des partenariats entre les banques et les entreprises de télécommunications conduisant à la suppression des obstacles à l'inclusion financière (faiblesse des infrastructures pour les opérations numériques, coûts d'exploitation élevés, rigidité des procédures KYC concernant l'ouverture de nouveaux comptes bancaires et peur des transactions) avec la Fintech moderne).

Originalité/pertinence : le document a souligné la situation des services financiers dans les pays en développement et l'importance de développer et de bénéficier de la technologie financière pour améliorer l'inclusion financière numérique, en particulier à la suite de la pandémie de COVID-19.

Mots clés : COVID-19, inclusion financière, services financiers numériques, pays en développement, Soudan.

1. Introduction

The COVID-19 pandemic, which erupted in the Chinese city of Wuhan in late 2019, presented one of the most serious global health disasters that hit the world and disrupted all aspects of economic and social life (Mustafa, 2023). Life is based on the interaction of the social fabric through work, production, earning income, and spending on living requirements. To limit the spread of the virus across the whole world, the World Health Organization (WHO) has established a protection protocol aiming to reduce infections. It states that people should keep a distance, stay at home, and not shake hands with anyone. Those phrases forced the world and drew its attention to the need to switch to digital transactions. Therefore, one of the lessons learned from the pandemic is that it changed the methodology and systems of banking and financial transactions. It was a key reason for financial and banking institutions to shift to providing digital financial services. The matter depends on three main axes, which include the extent of readiness of regulators, regulations, financial service providers, and the clients' awareness to benefit from those services. However, it was not that easy, as many challenges arose regarding the transformation and access to digital financial inclusion. It was not difficult for the developed countries, where the infrastructure is complete, the ecosystem is integrated and supported by the strength of the economy, individuals' high income, the spread of Internet networks, service providers, and advanced technology This paper examines the impact of the COVID-19 pandemic on financial inclusion in developing countries with focuses on Sudan.

2. Literature Review

The literature on assessing the impact of COVID-19 on financial services development in developed countries has been rapidly growing in the three years followed by 2019. But the research on COVID-19's effect on financial inclusion in developing economies is still few. There is needed for more research to better understand the situation in developing countries.

2.1 Basic Concepts:

2.1.1 What are Developing Countries?

The term developing countries or developing economies is being used interchangeably. A developing country (or a low and middle-income country (LMIC), less developed country, less economically developed country (LEDC), medium industrialized country, or under-developed country) is a country with less developed than other countries. However, this definition is not universally agreed upon (Kataria, 2022). CRS Report for Congress (2002), reported that how does one know whether an economy is really, developing or developed? The answer is we need to examine four criteria that are used to rank and assess economies' levels of development. They are (I) per capita income; (II) economic and social structure; (III) social conditions; and (IV) the prevailing level of economic and political freedom.

Mustafa (2022) pointed out that the United Nations Organization 1990 developed standards called World Rankings Indices. They used to classify countries. One of the most important of these measures is called the Human Development Index (HDI). It measures a country's average achievements in three basic dimensions of human development: life expectancy, educational attainment, and adjusted real income ($PPP per person). The optimum score of HDI is preferred to be >0.5, Max=1 for the most developed countries, and <0.5 for developing economies. Therefore, a developing country is a country with a relatively low standard of living, an undeveloped industrial base, and a moderate to low HDI.

The World Bank (2022) published new classifications of the countries by income level for the fiscal year 2022-2023. It classified the world's economies into four income groups low, lower-middle, upper-middle, and high-income. The classifications are based on the GNI per capita. A country's classification can adjust for two items: (I) Changes to GNI per capita: In each country, factors such as economic growth, inflation, exchange rates, and population growth influence the level of GNI per capita. (II) Changes to classification thresholds: To keep income classification thresholds fixed in real terms, they have adjusted annually for inflation using the Special Drawing Rights deflator, a weighted average of the GDP deflators of China, Japan, the United Kingdom, the United States, and the Euro Area (World Bank, 2023).

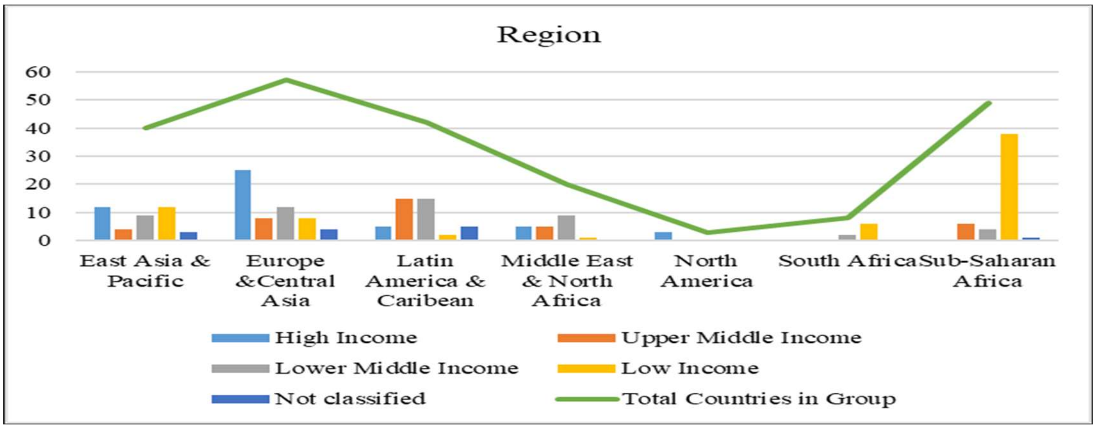
Table 1. World Bank: Countries Classification by GNI per capita:2022-2023

Group	GNP per Capita: July1, for Fiscal Year2023 (new)	GNP per Capita: July1, for Fiscal Year2022 (previous)
Low Income (LICs)	< UDS1085	<USD1045
Lower-Middle Income (L-MICs)	USD1086-USD4255	USD1046-USD4095
Upper-Middle Income (U-MICs)	USD4256-USD13205	USD4096-USD12695
High Income (HICs)	>USD13205	>USD12695

Source: World Bank, 2023

As seen in Table 1, low-income economies (developing countries) are defined as those with a GNI per capita of USD1085 or less in 2023; lower-middle-income economies are those with a GNI per capita between USD1086 and USD4255; upper-middle-income economies are those with a GNI per capita between USD4256 and USD13205; high-income economies are those with a GNI per capita of USD13205 or more.

Figure 1. World Bank: Countries Classification by Income Level: 2022
Number of Countries



Source: World Bank, 2022

Figure 1 shows the World Bank distribution of countries by region according to GNP. Sub-Saharan Africa (SSA) region has achieved the highest number of Low-income countries at 38, followed by East Asia and Pacific region of 12 countries, followed by Europe and Central Asia of 8 countries, followed by South Africa region of 6 countries, followed by Latin America and Caribbean region of 2 countries, and the Middle East and North Africa region include 1 low-income country.

2.1.2 What is Financial Inclusion?

The literature on financial inclusion indicates that there is no universally agreed-upon definition. But they all revolve around the concept of the widespread use of financial services, whether traditional or digital, by the various segments of society, especially the poor, marginalized, and financially excluded. However, there are important variations in term usage a,nd financial inclusion would reduce financial illiteracy and increase the ability to develop, control, and use financial resources effectively for enhancing the security and welfare of the community (Collins, 2009, OECD, 2011).

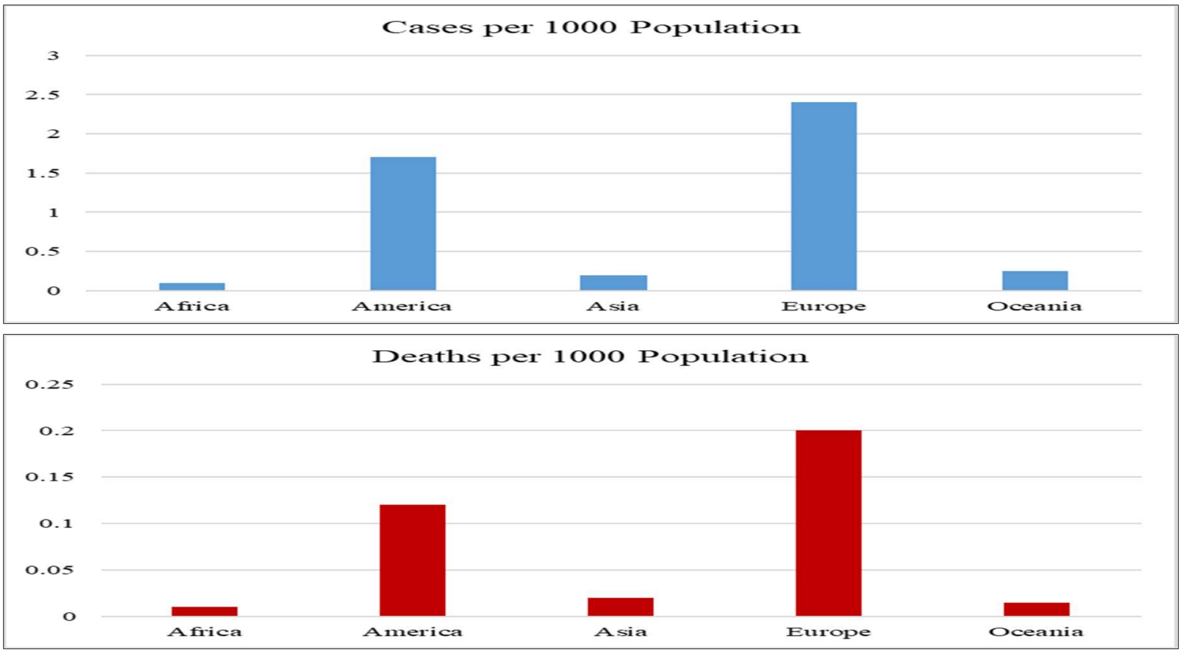
World Bank (2014) defines financial inclusion as “the proportion of individuals and firms that use financial services” and it is defined by The ADBI (2016) as “the degree of access of households and firms, and small and medium-sized enterprises, to reasonably priced financial services”. The official definitions of financial inclusion are neither widespread nor harmonized across countries. A large majority of central banks do not rely on an official definition. When there is a definition, it refers to the ability of firms and households to access and use financial products and services (BIS, 2017). Thus, financial inclusion can be directed to help low-income people suffering from financial exclusion. It also provides some effective methods for the unbanked population who are otherwise dependent on informal channels of credit such as family, friends, and lenders. Today, financial inclusion is now seen as the main supportive tool for microfinance in reducing poverty and enabling the poor to integrate financially into society in a way that works to improve their financial and social conditions in developing economies.

2.1.3 COVID-19 Pandemic

According to the WHO (2019), the COVID-19 pandemic is a global outbreak of coronavirus, an infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus. The first cases of novel coronavirus (nCoV) were detected in China in December 2019, with the virus spreading rapidly to other countries across the world. This led WHO to declare a Public Health Emergency of International Concern on 30 January 2020, and to characterize the outbreak as a pandemic on 11 March 2020.

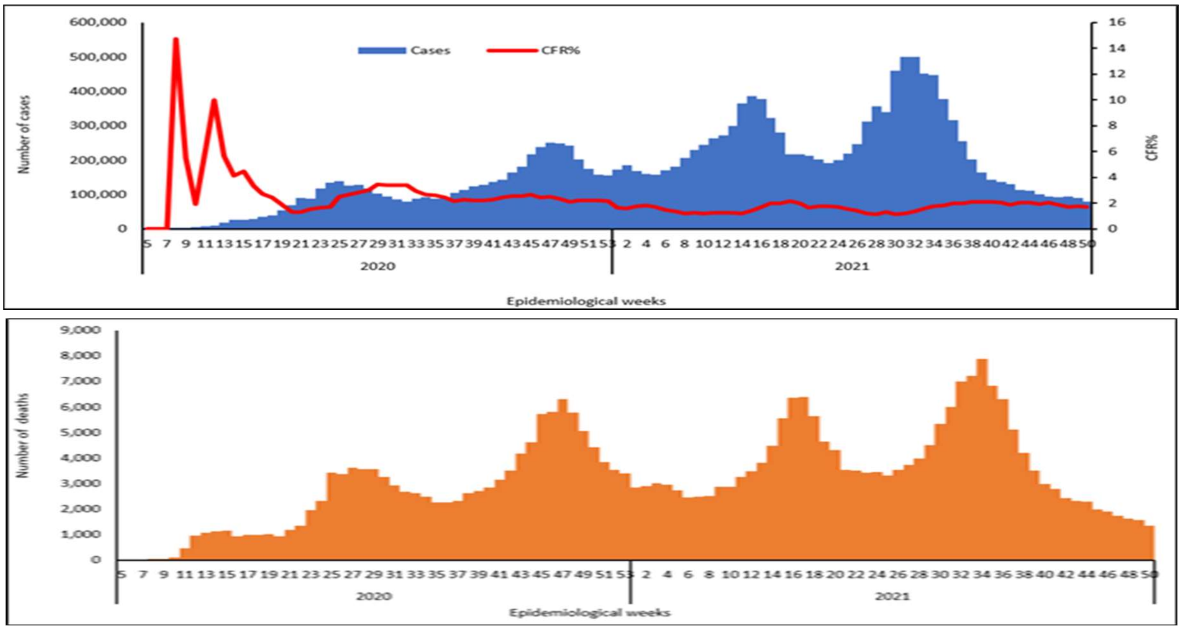
Mustafa (2023) highlighted that since the spread of COVID-19, all countries have changed their way of operating to restrict its spread globally. Where many countries have taken procedures to limit the spread through social distance and isolation policies, such as shutting educational institutions (kindergartens, primary, intermediary, high secondary schools, and high education), reducing official work hours, closing land crossings, seaports, airports, restricting the movement or mobility of people internally and externally and all countries raised the slogan “stay home, no handshake, and keep distance”.

Figure 2. World Distribution of COVID-19 Infection Cases and Deaths as of 15 May 2020



Source: UNCTAD STATS. Note: Charts scales are different.

Figure 3. COVID-19: Numbers of Cases Versus Deaths Updated for (2020–2021)



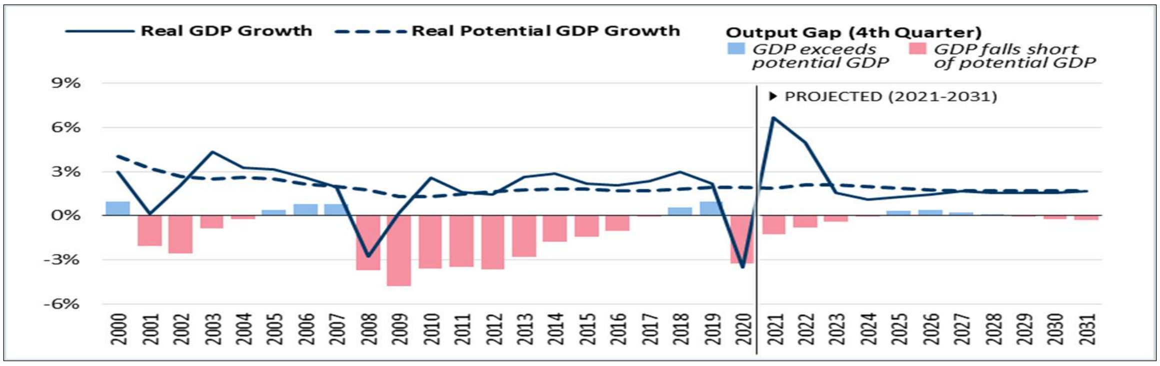
Source: WHO, 2021.

2.2 COVID-19 and Global Economy:

As a result of the closure policies taken by the authorities in the world to limit the spread of infection, both developed and developing economies were affected. IMF (2022) reported that the cost-of-living crisis, tightening financial conditions in most regions, Russia's invasion of Ukraine, and the COVID-19 pandemic all weigh negatively on the growth of the global economy. It is forecast to slow from 6.0 %

in 2021 to 3.2 % in 2022 and 2.7 % in 2023. Congressional Budget Office (CBO, 2022) issued another indicator to measure the economic impact of the COVID-19 pandemic on the global economy is represented by the difference between actual economic performance, measured by GDP, and potential output (referred to as the output gap).

Figure 4. Real and Potential U.S. GDP and the Output Gap

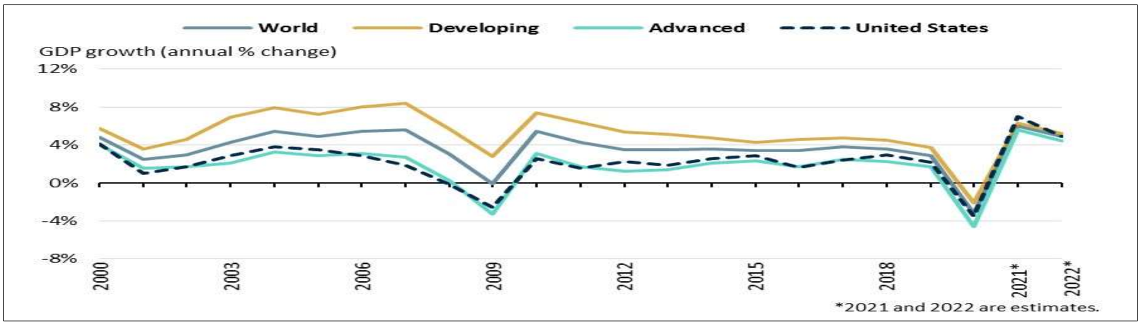


Source: CBO, 2022

2.3 COVID-19 and Developing Economies

According to Noy, Doan, Ferrarini, and Park (2020), the economic risk of the COVID-19 pandemic is particularly high in the poorer parts of the developing world. While IMF (2021) forecasted that the global economy in its way to recovery, but warned the recovery was hobbled by renewed waves of infections and a new version of the virus. UNCTAD (2022) estimated that the COVID-19 pandemic will pull African economies into a fall of about 1.4% in GDP, with smaller economies facing a contraction of up to 7.8%. This estimation is a result of the reduction of African exports with trade partnerships. The forecast estimated a marginally slower rate of growth in advanced economies than in April 2021 and a slower rate for emerging and developing economies as presented in Figure 5.

Figure 5. IMF Forecast 2021: GDP of World, Developing, Developed Countries and US

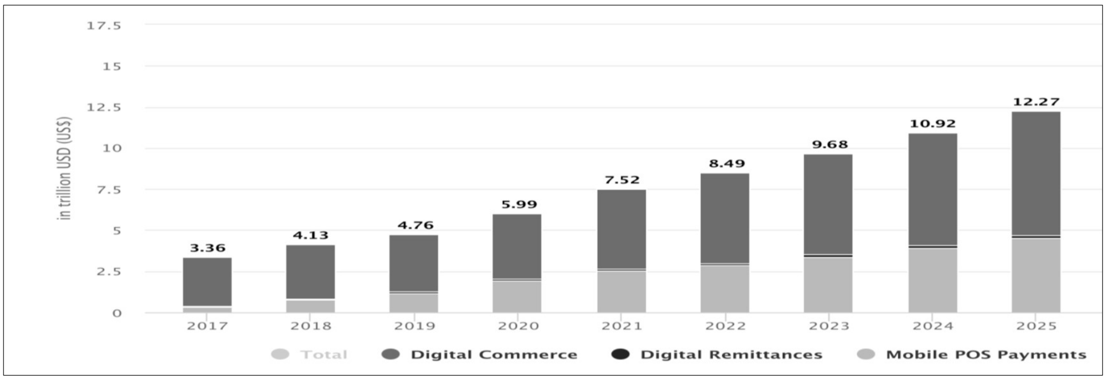


Source: IMF, World Economic Outlook 2021.

2.4 COVID-19 and Financial Inclusion in the World Economy.

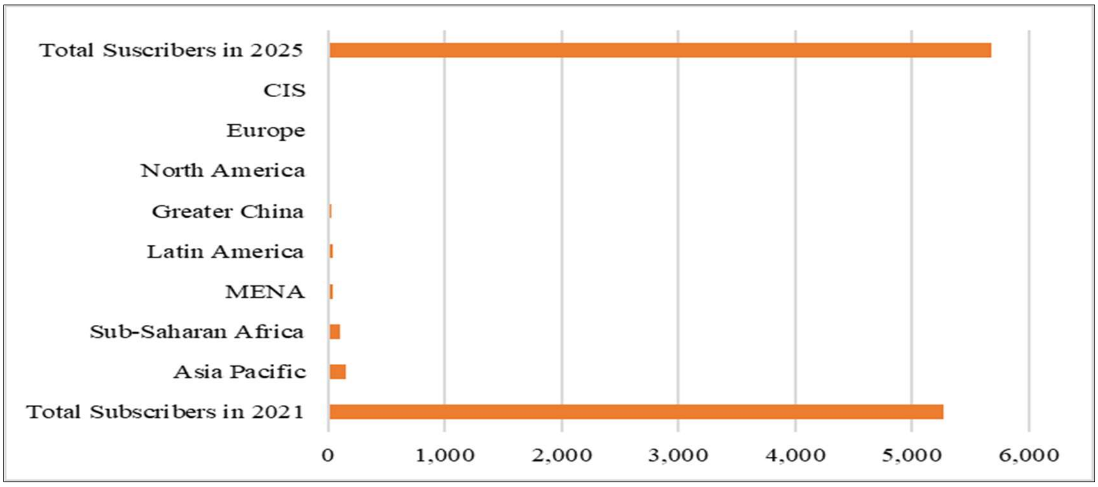
Observers and those interested in the field of economics and the development of financial services see that the COVID-19 pandemic had a positive impact on the increase of demand for digital financial services. People around the world have started using more digital services since the COVID-19 pandemic (Gigauri, 2021). Where 42% of Americans have used FinTech platforms, financial software downloads increased by 26%, and investments in FinTech increased by 144%. Digital Payments reached USD8.49tn in 2022 suggesting a further increase in the next years as shown in Figures 6, 7, and 8.

Figure 6. Worldwide Transaction Value of Digital Payment by Segment



Source: Gigauri, 2021

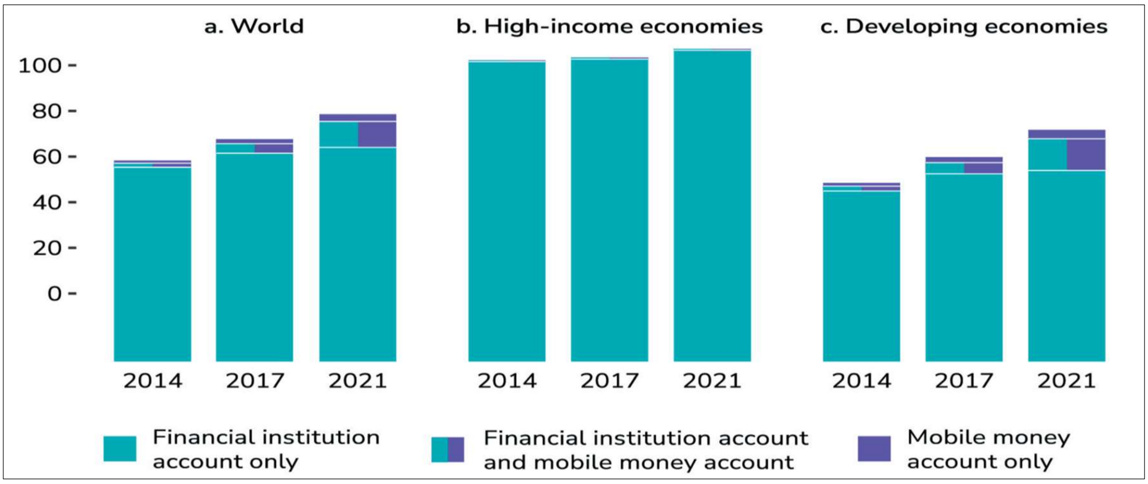
Figure 7. Number of Mobile Subscribers in 2021 and Forecasting to 2025 (Million)



Source: Author based on GSMA Intelligence data, 2022.

A report by the (World Bank, 2021a) on financial inclusion and digital payments in the age of COVID confirmed that the technological revolution and rapid implementation of digital solutions as a result of COVID-19 facilitated transformation and access to digital financial services and enhanced digital financial inclusion in developing economies. Figure 8 shows that 71% at present have an official bank account, compared to 42% at the time of the pandemic in 2019.

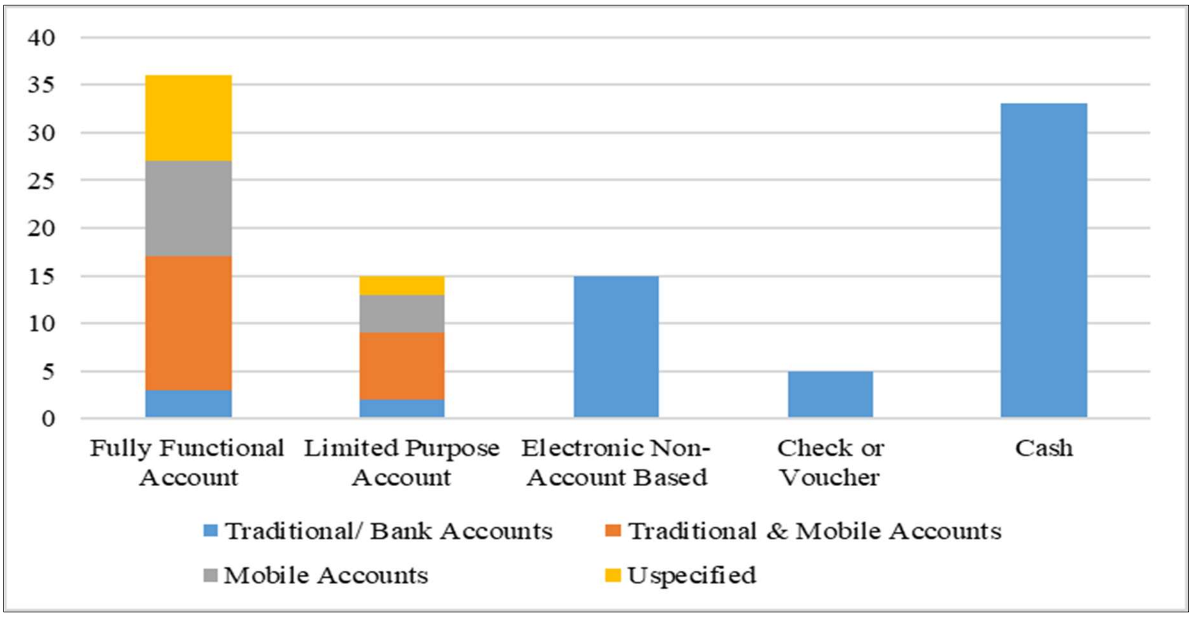
Figure 8. Financial Inclusion: World, High-Income, and Developing Economies% (2014-2021)



Source: Global Findex Database 2021.

Another report conducted by The World Bank (2021b) mentioned that the COVID-19 pandemic prompted governments to accelerate the procedures for converting to using digital payments to reach vulnerable citizens at risk. Although the use of mobile banking and cards by customers to pay merchants has grown significantly, cash still has wide uses in some countries. Figure 9 shows the positive shifts toward digital payments and the promotion of digital financial inclusion. However, some vulnerable groups in world society still cannot access digital financial services, due to reasons including identity, official documents required, and service cost in addition to consumer protection risks.

Figure 9. Payment Methods Used during COVID-19 Across a Subset of 58 Low- and Middle-Income Countries.



Source: World Bank Group, 2021b.

3. Methodology and Data

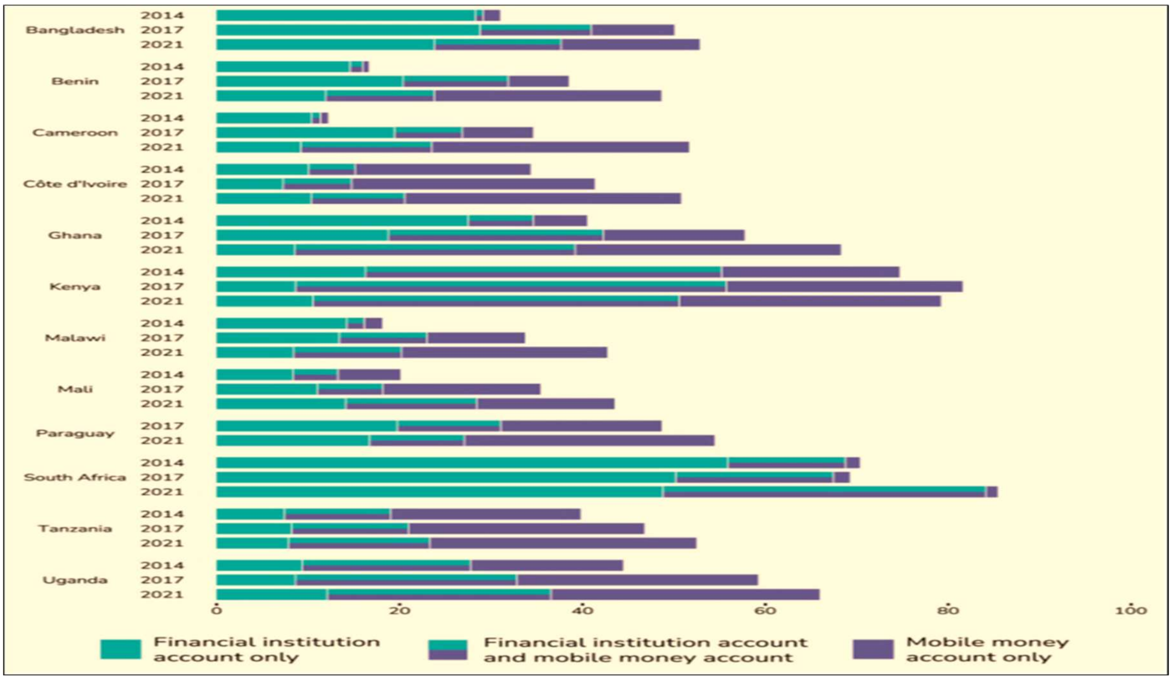
The paper aims to study and analyze the impact of the COVID-19 pandemic on financial inclusion in developing countries. To achieve this goal, the paper followed the descriptive analytical approach. The paper was divided into different axes that addressed the basic literature on the concept of developing countries, financial inclusion, and (Covid-19) and its impact on developed and developing economies and then its impact on financial inclusion. The paper highlights Sudan as a case study for a developing African country, hypothesizing that COVID-19 had a positive impact on increasing demand for digital financial services and promoting financial inclusion in developing countries. To test this hypothesis, data was collected from previous studies and databases of the World Health Organization, the World Bank, the International Monetary Fund, and the annual reports of the Central Bank of Sudan for the period 2018-2021.

4. Results and Discussion

4.1 COVID-19 and Financial Inclusion in Developing Countries:

Mugume and Bulime (2022) studied the lessons learned for digital financial inclusion for African economies with a focus on Kenya and Uganda in the post-coronavirus recovery period. The study found that individuals, businesses, and governments are turning to mobile digital platforms to reduce financial costs and mitigate the risks of spreading the virus among people. Moreover, digital financial inclusion is higher in males (25 years and over) who have more SIM cards registered in their names. It is expected to increase the frequency of use of digital financial services by users who trust mobile money agents. Figure 10 shows the situation of digital financial services in and out of SSA.

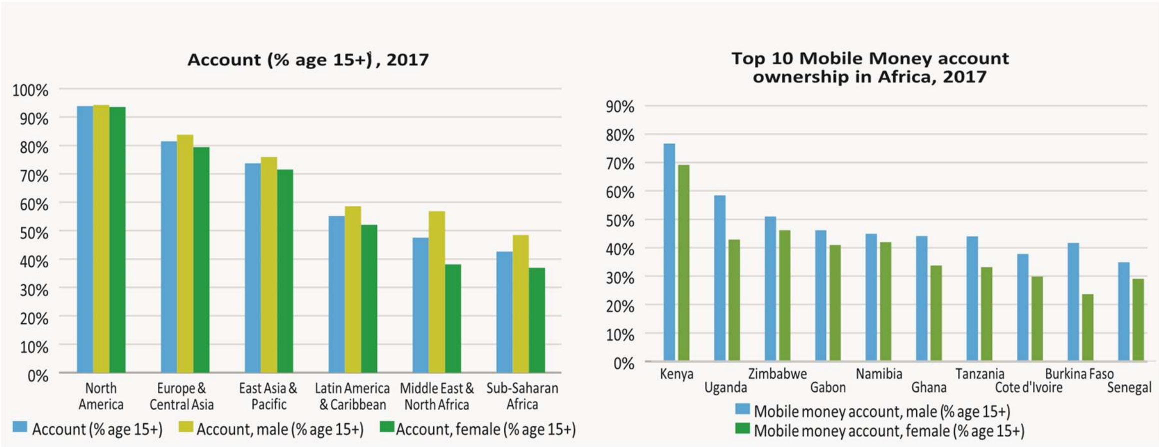
Figure 10. Financial Inclusion in and outside SSA Countries (%), 2014-2021



Source: Global Findex Database, 2021.

Machasio (2020) showed that COVID-19 has emphasized the crucial need for more strong financial inclusion strategies Earlier in the pandemic, access to financial services was considered critical in follow-up global development procedures to increase access to education, health, small business projects, and other services related to livelihoods and lives. Mobile money and bank accounts could help families manage economic emergencies during the time of the pandemic while declining the risk of descending into poverty. According to the World Bank's Global Findex database, 43 % of adults in Africa had bank accounts before the pandemic in 2017 as indicated in Figure 11.

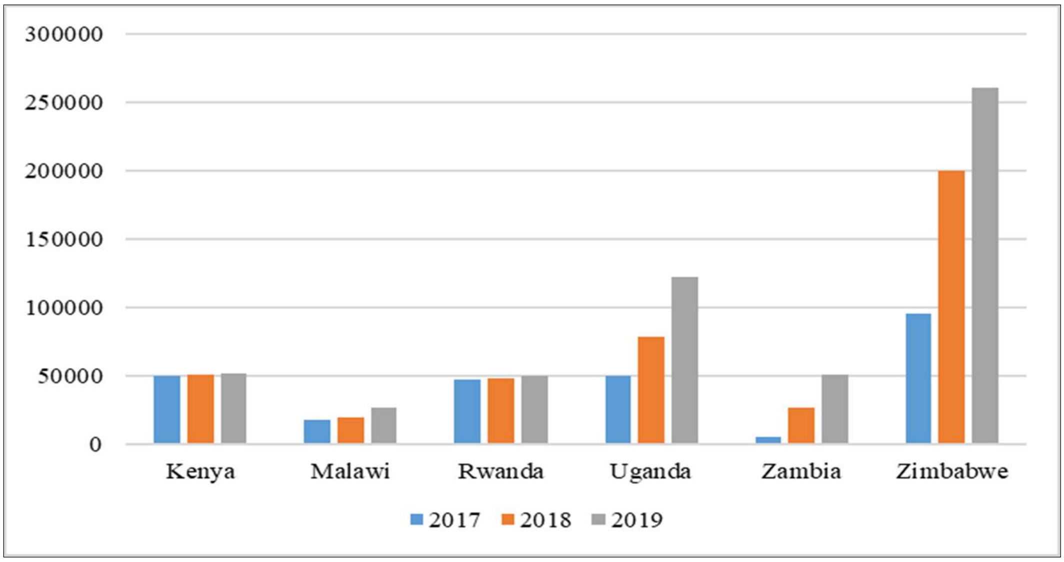
Figure 11. Bank Accounts Ownership in SSA



Source: GSMA, 2017

Njoroge (2021) indicated that sending and receiving money via mobile money helped poor people access digital financial services in the COMESA Region. It is very effective in helping and enabling families to navigate difficult social and economic conditions during the COVID-19 pandemic as shown in Figure 12 for some countries for which data are available.

Figure 12. Number of Mobile Money Transactions- COMESA (per 1000 Adults)



Source: Njoroge, 2021

4.2 COVID-19 and Financial Inclusion in Sudan

4.2.1 Sudan as an African Developing Country:

Sudan is an Arab African country (Afro-Arab) geographically located in northeastern Africa. It is the third-largest African country in terms of area. Sudan is bordered to the east by Ethiopia and Eritrea, to the north by Egypt and Libya, to the west by Chad and the Central African Republic, and the south by the State of South Sudan as a result of the civil war that led to the secession of the south in 2011 (Mustafa, 2020). The last political conflicts coincided with the COVID-19 epidemic and ended with the fall of President Omar Al-Bashir in 2019. Therefore, Sudan continued to suffer from economic and political imbalances and the economic situation remains unstable.

Table 2. Key Indices of Sudan's Economy (2018-2021)

Index	2018	2019	2020	2021
Real GDP growth%	-2.3	-2.5	-3.6	0.5
GDP per capita/US$	796	777	775	772
Inflation Rate%	63.3	51	163.3	359.1
Employment Rate%	19.1	22.1	26.8	28.3
Poverty Rate	46	65	27.3	30.6
Exchange Rate SDG/USD	46	61	262	442

Sources: CBOS, Annual Reports (2018-2021).

Table 2 shows that the basic indicators of the Sudanese economy performed negatively during the period (2018-2021). GDP growth reached (2.5) %, coinciding with the beginning of the spread of the Coronavirus in 2019, and 0.5% in 2021. GDP per Capita decreased from $777 in 2019 to $772 in 2021. Inflation continued to rise reaching the worse in 2021 at 359%. The exchange rate of the Sudanese pound continued to devaluate against the dollar reaching SDG46/USD, SDG61/USD, SDG262/USD, and SDG442/USD in 2018, 2019, 2020, and 2021 respectively. The unemployment rate increased from 22.1% in 2019 to 28.3 in 2021 and the poverty rate reached 30.6%.

Table 3. Sudan Demographic (2018-2021)

Item	2018	2019	2020	2021
Population, (In million Inhabits)	41.9	43.2	44.4	45.7
Population growth rate%	2.4	2.9	2.7	2.7
Urban population%	34.6	34.9	35.3	35.6
Population aged 15-64 years %	55.6	55.7	55.3	55.5
Population aged above 64 years %	3.1	3.2	3.3	3.4
Female population%	50	50	50	50
Employment to population ratio %	40.5	40.4	38.3	38.5

Sources: Konema Database, 2023.

Table 3 indicates that the demography of Sudan did not change much during the period 2018-2021. The population increased from 41.9 million in 2018 to 45.7 million in 2021, which shows that it was not greatly affected by the 2019s health pandemic. Population growth declined from 2.9% in 2019 to

2.7% in 2021%. Urban population ranged between 34%-36%. The population aged 15-64 years represents almost 55% of the total population. Regardless of the country, this age group has received global attention in financial inclusion studies.

Table 4. Sudan in World Ranking

Index	2018	2019	2020	2021
Human Development Index (1 = the most developed)	0.51	0.51	0.51	0.50
Ease of Doing Business Index (The highest = the best)	45.00	48.02	44.83	43.22
Economic Freedom Index (100 represents the maximum freedom)	49.40	47.70	45.00	39.10
Political Rights Index (40 = highest degree of political right)	4	3	2	2

Sources: Konema Database, 2023.

Table 4 displays that Sudan is still far from the global ranking levels where Civil wars and tribal conflicts greatly affected the human development index, so it did not exceed 0.5. It is noted that there is a negative relationship between the index of political rights and the time trend. The same applies to the rest of the indicators.

4.2.2 Status of Financial Inclusion in Sudan

There are many indicators used to measure and evaluate the position of financial inclusion achieved in any country. For this study and according to the availability of data on Sudan, the following indicators were identified: The number of commercial and specialized banks and their geographical spread, the number of companies authorized to provide digital payment services, the number of telecommunications companies, the number of mobile phone subscribers, the number of Internet subscribers, the diversity of digital payment methods used, the value and volume of transactions that take place through mobile banking, and digital financial products offered by telecom companies.

Table 5. Operating Banks in Sudan

(Number)

Item	2018	2019	2020	2021
(1) Specialized Banks	**5**	**5**	**5**	**5**
Joint*	1	1	2	2
Government	4	4	3	3
(2) Commercial Banks	**32**	**32**	**33**	**33**
Joint	24	24	23	23
Government	1	1	1	1
Foreign	7	7	9	9
Total (1)+(2)	**37**	**37**	**38**	**38**

Sources: CBOS, Annual Reports (2018-2021). * Joint Banks are banks where their Capital is joined between several parties either local (public or private) or foreign.

As seen in Table 5, the total number of banks operating in Sudan during the period 2018-2021 has increased slightly by one bank in the last two years.

Table 6. The Geographical Spread of Banks in Sudan (2018-2021)

(Number)

Item	2018	2019	2020	2021
Khartoum State	465	487	374	384
Middle States (Sinnar, Aljazeera, Blue Nile, and White	171	179	155	160
Eastern States (Gadarif, Kassala, and Red Sea)	107	113	94	93
Northern States (North and River Nile States)	91	93	85	86
Kurdufan States (North, South, and Western Kurdufan)	78	79	75	77
Darfur States(North, South, West, Middle and East	72	73	63	65
Total	**984**	**1024**	**846**	**865**

Sources: CBOS, Annual Reports (2018-2021).

The geographical spread of banks and their branches is one of the indicators used to measure financial inclusion. Table 6 displays that there is an imbalance in the geographical distribution of banks in Sudan, where the densely populated Khartoum State alone acquires about 50% of the operating bank branches. Middle states come in second place, with bank branches ranging between 155 to 179 branches. The poorest states in Sudan have bank branches ranging between 63 to 79 during the period 2018-2021.

Table 7. Authorized Digital Payment Services Companies in Sudan (2018-2021)

(In Number)

Items	No. of Branchless Banking			
	2018	**2019**	**2020**	**2021**
Mobile Phone Applications	8	5	5	4
POS	9	22	36	39
E-Commerce Platforms	3	2	2	2
E-wallet	1	1	3	3
Corporate Applications that Operate in the National Payment Switch	6	26	38	38
Others **(**ATM outsourcing - Prepaid Card Service University Tuition Payment Service - Feeding Service ATM**)**	**-**	1	3	3
Total	**27**	**57**	87	89

Source: CBOS, Annual Reports (2018-2021).

Table 7 indicates a significant increase in the number of companies providing POS services, as they increased from 9 to 22 and then to 39 in 2018, 2022, and 2021, respectively. This is a good sign of empowerment for digital financial services during the COVID-19 period and beyond. Also, the number of companies' apps that work with the national payment system increased from 6 in 2018 to 38 apps in 2021. However, what is not a good indicator of digital financial inclusion is the decrease in the number of companies providing mobile banking applications which decreased from 8 in 2018 to 4 in 2021 by 50%. These types of companies are important for promoting digital financial inclusion. While companies providing electronic wallet services and E-commerce platforms did not grow significantly, as their number ranged from one to 3 companies during 2018-2021. E-wallets are one of the reliable methods for digital financial inclusion during the pandemic, as they are simple to obtain by the poor in Sudan who find it difficult to open bank accounts.

Table 8. Telecommunication Spread in Sudan (2018-2021)

Item	2018	2019	2020	2021
Share of the Internet users	NA	NA	NA	NA
Share of households with internet	NA	NA	NA	NA
Number of mobile cellular subscriptions (per 100 inhabits)	72.0	77.1	80.3	86.6

Sources: Konema Database, 2023.

Table 8 indicates that there is no data available on the number of Internet users (individuals, households, and institutions), but there is a significant increase in the percentage of subscribers and users of mobile phones, as it increased from 72% per 100 inhabits in 2018 to 86.6% per 100 inhabits in 2022. Generally, the increase in the number of mobile phone users in Sudan is considered a positive implicit indicator and supports the transition to digital financial inclusion through the spread of mobile banking.

Table 9. Digital Payment Methods in Sudan (2018-2021)

(In Units)

Item	2018	2019	2020	2021
ATM Machines	1596	1591	1572	1523
ATM Card	3962127	4006471	4726555	6522124
POS	16162	32384	39739	44846
E-Wallet Card	885064	1087572	1446028	2288773

Source: CBOS, Annual Reports (2018-2021).

Table 9 shows the increase/decrease in the number of electronic payment means issued to users during 2018-2021. It is noted that there is a slight decrease in the number of ATMs spread across the various cities of Sudan, as it decreased in 2021 by 37 machines compared to what it was in 2018. The number of ATM cards issued in 2021 increased by 62.7% compared to 2019, and this is a good indicator of the trend toward digital financial services. In the same context, there is a significant growth in the issuance of POS, as it grew by 177.4% in 2021 compared to 2018. There is also a significant growth in the issuance of electronic wallet cards, as it increased by 158.5% compared to 2018.

4.2.3 Mobile Money and Mobile Banking in Sudan

The history of mobile money in Sudan is relatively recent compared to neighboring countries. Sudanese telecom companies have contributed to promoting digital financial inclusion by launching digital products that help the poor who do not have bank accounts to access digital financial services. Its products are characterized by simplicity and ease of use, as they are cheap and suitable for individuals with limited digital knowledge. These services require obtaining a cheap phone and a SIM card. But mobile banking requires a bank account.

Table 10. Mobile Money via Telecomm Companies in Sudan: 2021

Company/Bank Name	App Name	Financial Services Provided
Zain-Sudan	ZainPass	**ZainPass** is a mobile banking application developed to offer fast and convenient mobile banking services. Just link your Cash Card or your ATM debit card and you will be ready to connect to your account and

		use the application. With **ZainPass mobile banking application experience the following services:** Send money to any Bank card, Top-up Zain prepaid numbers, pay bills for Zain postpaid numbers, Purchase electricity, and Pay government fees E15. **What makes ZainPass different:** Using the app without the need to have an internet subscription, Topping up your Zain phone number without any credit limit, and Easy and simple to use.
MTN-Sudan	Mobile Amwal-Momo	**Mobile Amwal** is a simple, modern, and secure way of transferring money, making payments, and doing other transactions anywhere you go using mobile phones without the need for an internet connection. The service is offered by **MTN** in partnership with the **Nile Bank** and the **Central Bank of Sudan**. • Convenient means to perform financial operations using any type of mobile phone without the need for an internet connection. • Low cost compared to other traditional ways of money transfer e.g. traditional credit transfer “me2u”. • Better availability and reachability of cash-in and cash-out service points through a wide Point of service network across the country. • Time saving & faster processes. • Higher daily transaction limits compared to other channels (ATM for Example). • High security as it uses a PIN code for each customer.
Sudani	Gorooshi	**Gorooshi** is a mobile money service from Sudani. Gorooshi enables customers to manage their money by opening a bank account connected with a mobile phone number. The mobile money account allows customers to perform several financial transactions, including purchase transactions from Gorooshi points of sale, money transfers between Gorooshi subscribers, money transfers between Gorooshi account and bank account, electricity purchases, and airtime credit purchases in addition to a variety of other additional services. **Advantages Provided by the Gorooshi Service:** Cash deposit through Sudani shops and accredit Gorooshi points of sales. Cash withdrawal through Sudani shops and accredit Gorooshi points of sales. Payment and purchase transactions. Electricity purchase. Purchasing from merchants and supermarkets. Governmental payments. Top-up and bill payment. Donations services. Money transfer between Gorooshi subscribers (P2P). Money transfer between Gorooshi account and bank account, and transaction statement issuance. **Services:** P2P, P2S, Cash Out, Card to Wallet, Wallet to Card, MTN Top UP, Bill Payment to MTN, Electricity payment, Governmental Services, Donation, Pay High Education Institutions Admission Fees
Bank of Khartoum	Bankak	Bankak is a mobile banking app. The provider is the Bank of Khartoum (BOK). Sudan has many mobile banking apps like Fawry, Saheel, and Okash but Bankak is the more famous and widespread. They are not as popular as Bankak, because they lack versatility. Bankak enables customers with (I) **Bill Payment** (Electricity, Telecom/Internet, Education, Airlines, Government Services, Food Delivery, Online Shopping, Transportation, Fuel & Gas Stations, Entertainment, Insurance, Donation, Real Estate, BOK Payment, Travel & Tourism, Medicine and Health), (II) **Funds Transfer** (Other BOK Account, Mobile Money, Other Bank Account (by card), (III) **Cardless**

		Withdrawal (by beneficiary mobile phone number), and (IV) **Other services** (Apply for Fixed Deposit, Manage Beneficiary, Transaction History, Card Management, Standing Order, E-Commerce, and FCY Exchange). Bankak requires opening a bank account and depositing an initial amount of SDG 20000 (about USD40), which constitutes an obstacle for the poor with low incomes.

Source: Websites of Zain, MTN, Sudani, and Bank of Khartoum (2021).

Table 10 indicates that telecommunications companies are superior to banks and other financial institutions in several aspects when it comes to providing financial services. These features are represented in the wide spread of mobile phone networks and the high number of subscribers compared to bank customers. In addition, mobile phone subscribers can be automatically converted to financial services customers whenever they want, as telecom companies automatically keep their data and do not need to renew them unless necessary. On the other hand, we find that the procedures for opening bank accounts are more complex, so it is expected that the contribution of telecom companies via mobile money will be more effective in promoting digital financial inclusion in Sudan.

Table 11. Number of Transactions via Mobile Payment System (2018-2021)

(In Thousands)

Item	**2018**	**2019**	**%**	**2020**	**%**	**2021**	**%**
Services(Top-Ups, Pay bills, Fund Transfers)	4433.2	5043.7	13.8	5388.6	6.8	6783.1	34. 5
Deposits and Withdrawals	414	600	44.9	222.9	-62.85	450.4	-24.9

Source: CBOS, Annual Reports (2018-2021).

Table 11 shows the number of transactions that took place via the telephone payment system, as their number (recharging balance, paying bills, and transferring funds) increased from 5043.7 thousand in 2019 to 6783.1 thousand transactions, an increase of 34.5% compared to 2019. Despite the arrival of banks operating in Sudan 39 banks with 865 branches, the number of deposit and withdrawal transactions via banking phone decreased in 2021 by (24.9%) compared to 2019. This decline indicates the need to review the financial inclusion strategy in Sudan.

Table 12. Transactions Value via Mobile Payment System (2018-2021)

In SDG Millions

Item	**2018**	**2019**	**%**	**2020**	**%**	**2021**	**%**
Services(Top-Ups, Pay bills, Fund Transfers.)	1061.8	2186.7	105.9	13340.2	510.0	21562.5	886.1
Deposits and Withdrawals	1073.7	1691.4	57.5	1858.6	9.88	5703.5	237.2

Source: CBOS, Annual Reports (2018-2021).

Table 12 indicates the continuous growth in the value of transactions (Top-Ups, pay bills, Fund Transfers) that took place via mobile banking, as their value increased to SDG 2186.7 million by 886.1% in 2021 compared to 2019. While the transaction values of deposits and withdrawals increased to SDG 5703.5 million by 237.2% in 2021 compared to 2019.

4.2.4 Microfinance and Financial Inclusion in Sudan

One of the general goals of financial inclusion is to enable the poor to access financial services, whether traditional or digital, at a low cost that helps integrate them socially and raise their standard of living economically. Microfinance is one of the tools of inclusion as it is a financial service targeting the economically active poor. The policies of the CBOS contributed to reducing poverty by directing Sudanese banks to employ a rate of no less than 15% of the total bank financing implemented, whether through direct wholesale financing for microfinance institutions individual financing for clients, or joint portfolios. Table 13 and Figure 14 display the actual performance of microfinance indicators in Sudan during the period 2018-2021.

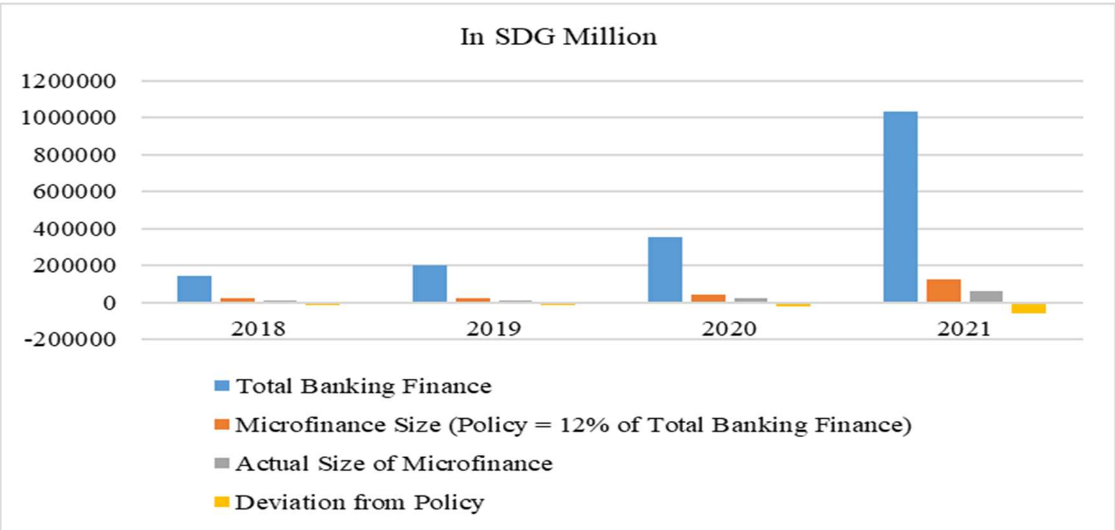
Table 13. Microfinance Indicators in Sudan (2018-2021)

In SDG Millions

Item	2018	2019	2020	2021
Total banking finance	143751	203102	355131.5	1031236
The size of microfinance targeted according to the policy (12% of total banking finance)	21563	24372	42615.8	123748.3
The actual size of microfinance	8798	8917	20178.3	61994.7
Deviation from policy	(12765)	(15455)	(22437.5)	(61753.6)
Actual microfinance to total target %	40.8	36.6	45.4	50.1
Microfinance to total bank financing %	6.1	4.4	5.7	6.0
Non-performing microfinance in microfinance institutions %	NA	4.8	4.6	8.6
Non-performing microfinance in banks %	NA	NA	3.8	3.5
Non-performing microfinance in banks and microfinance institutions %	NA	NA	4.0	4.3

Source: CBOS, Annual Reports (2018-2021)

Figure 14. Microfinance in Sudan (2018-2021)



Source: Author, based on data from Table 13

4.2.4.1 Challenges and Obstacles Facing Microfinance in Sudan

Several challenges and obstacles faced by microfinance during the period 2018-2021 prevented the achievement of the target percentage according to the policy (12% of the total bank financing), represented in the following:

- The poor performance of the Sudanese economy during the period 2018-2021 (high inflation, low exchange rate, and political instability) contributed to the failure of some microfinance projects.
- Despite the establishment of a specialized agency to ensure the risk of microfinance, the phenomenon of customer default still exists.
- Difficult procedures and the high cost of microfinance, as banks see that they are profit-making institutions and not one of their goals is the social dimension.
- Weak community culture and awareness of the importance of microfinance as a tool to reduce poverty and contribute to economic and social development.
- Weak linking of financing information systems used in microfinance institutions to the Microfinance Guarantee Agency system and the provision of windows and screens for the reports required by the Central Bank of Sudan. The number of institutions that provide financial information to the Microfinance Guarantee Agency system (on which the Central Bank will rely in its reports) has reached 14 institutions just (CBOS, 2021).
- The absence of a system for managing microfinance information.
- Weak capital of the institutions that provide services, the nature of these institutions as governmental institutions, and the limited number of private sector institutions that provide services.
- The slow pace of adapting the legal status of the Microfinance Guarantee Agency to the scope of the guarantee as an umbrella and the scope of its work to provide guarantees to micro and small enterprises.
- The weak rate of implementation of microfinance and its absence in some commercial banks, necessitates the need to start implementing the proposal of mandatory portfolios to raise the percentage of commitment in these banks according to what is planned in the policies.
- The weak contribution of public sector banks and the weak targeting of rural areas, sectors, groups, and specialized programs, reflects that financial inclusion through microfinance is still faced with many obstacles and needs more reforms.

4.2.5 Central Bank of Sudan and Financial Inclusion

4.2.5.1 Policies Supporting Digital Financial Inclusion

In 1999 the Central Bank of Sudan (CBOS) founded Electronic Banking Services Company (EBS) to help in applying banking technology in Sudan. It became the consultant and Technical Arm of the CBOS in the banking technology area. EBS played a crucial role in enhancing digital financial inclusion in Sudan through providing financial services targeting the unbanked community, through innovative ICT solutions. EBS provided a centralized wide range of payment products and channels. The centralization of services and solutions, along with operating under the regulations of the CBOS. EBS provided a fair opportunity for banks, merchants, and business partners to come up with a variety of innovative electronic/digital payment solutions (EBS, 2023).

In the year 2005, the CBOS began thinking of establishing a National Payment System that works to enhance the Real-Time Gross Settlement (RTGS) for financial transactions in the banking system, which facilitates the application of electronic clearing. This idea is considered the first seed of the financial inclusion tree in Sudan.

In the context of developing banking technology by the CBOS Policy, the year 2006, witnessed the establishment of the Payment Systems and Banking Technology Department, which belongs to the Financial Institutions and Systems Wing in the CBOS. The most important function of the Department is the direct supervision of the formulation of the strategy and technical development plans of the national nature to the banking sector and the formulation of the policies, procedures, and regulations for the National Payment System. The year 2006, also witnessed the completion of the implementation of the targeted banking technological projects represented in the National Payment Switch which commenced its work in February 2006, the Electronic Checks Clearing which commenced actual operation in December 2006, and the Electronic Returns completed and started on 15th February 2007 (CBOS,2006).

The following is a brief review of the most important efforts made by the CBOS since 2018 to enhance financial inclusion as one of the financial tools to confront the spread of COVID-19 in 2019 and beyond:

The 2018 policy aims to encourage banks to attract savings by simplifying the procedures required to open new branches and accounts. In addition to improving the quality of services provided, spreading banking awareness, and following up the stages preparing a financial inclusion strategy and developing financial inclusion reports and using them as a tool to measure the development of financial and banking institutions. The real performance of policies that have been implemented in 2018 is displayed in Tables 8-11. An international auditing firm (affiliated with the Payment Systems Cards Data Insurance Standards Council) was contracted to evaluate the National Payment System owned by the CBOS in cooperation with the relevant authorities. National awareness campaigns for the national electronic/digital payment systems have been implemented, including a festival to shop through digital payment methods and establish a discounted payment market using the payment. In addition to participating in the banking technology week to support the use of available digital banking products such as digital money and enhance confidence in them.

In 2019, the policies of the CBOS continued to promote increased efficiency and diversity of services provided by banks to its customers by increasing the volume of banking resources by 20% as a minimum and increasing the number of those dealing with banks by raising the rate of return on savings and investment deposits. In addition to expanding the use of digital money and digital payment methods, reducing the cost of transactions, and providing an easy, fast, and secure payment method (bank card, E-wallet, and mobile payment). Furthermore, attracts more resources from Non-bank financial institutions and simplifies the procedures required to open new branches and bank accounts. Also, the continued vertical expansion in the provision of banking services, improving the quality of banking services provided and spreading banking awareness to reduce the spread of COVID-19. The final agreement was reached to prepare the statistical survey of financial inclusion with the Central Bureau of Statistics, in addition to continuing the study of the offer of financial services in cooperation with the World Bank and related parties. (CBOS, 2019).

The year 2020 witnessed the widespread spread of the Coronavirus (COVID-19), which led to the closure of many institutions in Sudan, and banks began operating with a capacity of less than 50%. Therefore, the policies of the CBOS emphasized limiting dealing with cash and encouraging heavy reliance on digital payment methods. Consequently, the COVID-19 pandemic indirectly provided an opportunity to expand the umbrella of financial inclusion where the great diversity witnessed by digital payment tools and systems in Sudan, as shown in Tables 8-11.

In December 2020, the American government removed Sudan from the list of countries sponsoring terrorism. Therefore, the policies of the CBOS were issued for the year 2021 in light of an economic situation promising bank openness to regional and global financial systems. the policy aimed at achieving financial inclusion to assist in achieving economic and social development by focusing on strengthening the supply side of traditional and digital banking products, enhancing the launch of micro and microfinance programs, and strengthening consumer protection systems and measures. To enhance the efficiency of payment systems and settlements, 7 banks have been linked with Visa and MasterCard. The number 32 banks also completed the readiness to use the international banking number (IBAN). CBOS's efforts continued to follow up the stages of preparing the financial inclusion strategy, which aims to expand and enhance the offer of digital financial services and facilitate the procedures for benefiting from them by benefiting from the technical support provided by the World Bank. several diagnostic studies were prepared for the supply side of financing the agricultural sector and the insurance sector, in addition to technical support from international institutions in the field of infrastructure for the financial sector. Several technical committees have been formed to follow up. On the demand side for digital financial services, a field survey was conducted (in cooperation with the World Bank, the Central Bureau of Statistics, and Finnmark International Consulting Company) covering all states of Sudan, as displayed in Tables 6-11.

4.2.5.2Key Challenges Facing Financial Inclusion in Developing Economies

Although some developing economies (Sudan as an example of a developing African country) managed to cross the initial thresholds of digitizing their financial transactions, there are still many restrictions and challenges to reaching full financial/digital inclusion.

IMF (2023b) reported that Niger faces multiple challenges to improve the inclusiveness of its financial system, including low financial literacy, mismatch of financial services and products to the population needs, high cost of access and usage, informal sector dominance, and infrastructure gaps. Households enumerated the following main reasons preventing them from demanding credit from formal financial institutions: (I) do not meet the requirements, (II) not able to repay, (III) absence of banks, (IV) do not know how to apply for credit, (IIV) cannot repay.

UNCTAD (2021) identified several factors affecting the supply and demand of financial services that inhibit the access of individuals and firms to financial services in Costa Rica, Nigeria, and Sri Lanka. While some unbanked people and firms exhibit no demand for accounts, most are excluded because of physical, economic, administrative, and psychological barriers such as cost, travel distance, amount of documentation, and lack of trust. In 2017, 60 percent of adults in low-income economies listed the lack of disposable money as the reason for having no accounts; 28 percent in developing economies. In Costa Rica, for example, high intermediation margins were found as one source of inefficiency in financial markets, transferring wealth from consumers to banks. High transaction costs increase the recourse to informal and cash-based operations. In Nigeria, agent networks were insufficient, especially in rural areas where people may lack trust in agents, particularly when they are recruited from outside the community. Furthermore, many Nigerians lack national identity cards, limiting their access to some accounts. In Sri Lanka, promoting financial literacy and strengthening consumer protection was important to increase the trust and usage of formal financial services. Imperfect competition could lead to market concentration, raising costs of finance and market segmentation, with resultant undersupply in rural areas and the poor. The existence of such market failures points to the importance of sound regulations and the need for policy to enhance financial inclusion, universal access, competition, and consumer protection in developing countries.

Harun (2012) mentioned the barriers affecting financial inclusion in India include the use of technology, security concerns, limitations and availability of infrastructure, multiple technologies that could be used based on geographical peculiarities, meaningful collaborations, innovative product lines and processes, financial literacy and awareness, and customer service and consumer protection. While Rana (2019) identified the high cost and low return, the risk of using digital services, and the lack of trust represent the key challenges to digital financial services in India as an emerging economy.

Beck (2020) highlighted that interoperability between different providers (provision of mobile money and transactions between providers, agents, and customers) is still a challenge in Kenya and Tanzania. M-Pesa in Kenya gained early market domination and was forced through the threat of regulatory action to open up its agent network; in neighboring Tanzania, where several competing MNOs dominate the market. Another challenge is Know-Your-Customer (KYC) requirements in developing economies with a large incidence of informality. Rigid KYC requirements have excluded large shares of the population in many developing countries from the official financial system.

UN (2017) indicated that East Asia has the largest credit gap for micro, small, and medium enterprises. Therefore, the higher credit risks and lack of documentation associated with small borrowers are numerous barriers to enhancing financial inclusion in the region.

Veerabhadran (2023) presented that there are many challenges facing transformation to digital services and financial inclusion in the banking industry including (I) Shifting from legacy systems to new technology requires huge transition costs, (II) New technological systems are exposed to high-security risks because of voluminous personal data and transaction records, which make it harder to execute changes while meeting compliance requirements, (III) Traditional banking institutions find this hard to achieve customer expectations on user experience because it requires extensive research, time, strategy, and marketing to offer the right choices to customers, (IV) Difficulty of changes the culture of the workplace and reskilling workforce, and (IIV) Sharp competition with new financial and Fintech companies such as MTN MoMo, Facebook, Amazon, and Google pay leaves banks with challenges if they go digital.

Sudan is not much different from what was mentioned above in terms of the obstacles and barriers that limit the spread of financial services and digital financial inclusion in developing countries. However, political instability and the outbreak of armed conflicts (the most recent of which broke out in Khartoum on April 15, 2023, between the Sudanese Armed Forces and the Rapid Support Forces and rapidly moved to the Darfur Region in western Sudan). War in Sudan greatly damaged the infrastructure on which providers depend. It became one of the main obstacles to the spread of digital financial inclusion.

5. Conclusion and Policy Implications

The paper aims to analyze the impact of COVID-19 on financial inclusion in developing countries, focusing on Sudan during the period 2018-2021. The study concluded the following:

- Although the closure policies and precautionary measures during the COVID-19 pandemic period negatively affected the economies of developing countries, it was a strong incentive to increase the demand for digital financial services and thus expand the umbrella of financial inclusion.
- Digital financial services are relatively modern in developing countries. There are restrictions in front of financial/digital inclusion. The most important of which include the weakness of the infrastructure for digital operation, the high operational cost, the financial illiteracy, the difficulty, and fear of dealing with modern technology, and the rigidity in the procedures of KYC regarding opening new bank accounts.
- Telecom and mobile companies have contributed to enhancing financial inclusion in Sudan by providing digital financial services that depend only on mobile money and do not require opening bank accounts. However, the experience is still in its infancy and is surrounded by obstacles, including low financial awareness, failure to update financial regulations, digital identity problems, privacy and interoperability, exchange of customer data, confidentiality, and financial security.
- Sudan, as a developing African country, has suffered greatly from political instability and a low level of security, which constituted a repelling environment for investors in the field of Fintech and providers of digital financial services.
- The absence of the state in developing countries from adopting comprehensive strategies and clear policies for financial inclusion. Most of the successful experiences such as M-Pesa in Kenya, and mobile banking such as Bankak in Sudan were from the efforts of the private sector.
- Developing countries have not been able to benefit from social platforms in promoting financial finance and digital financial services (Google Pay, Apple Pay, WhatsApp, and Facebook, …etc.).
- The paper recommends policymakers, providers, and regulators in developing countries activate partnerships with the private sector (telecom and internet companies and banks) and remove the aforementioned barriers and obstacles, which helps in promoting financial/digital inclusion.
- The weakness of the infrastructure in developing countries requires opening the door to continue benefiting from the financial payment platforms by increasing customer awareness and eradicating financial illiteracy among the poor.
- Developing countries need to reconsider the regulations and laws regulating digital financial transactions to strengthen the confidence of dealers in the ecosystem in a way that preserves their rights.
- The need to simplify the procedures for opening bank accounts and this does not mean ignoring the requirements of knowing your customer (KYC) and digital identity.
- Developing countries especially African suffer from problems of political instability and armed conflicts. Therefore, financial inclusion strategies must take into account the treatment of the conditions of the displaced, refugees, and immigrants and their financial integration.
- Linking the provision of microfinance with digital means of payment would enhance financial inclusion among the poor who are financially and technically disadvantaged (activating digital microfinance).

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