UNIVERSITY OF CAPE COAST

FINANCIAL INCLUSION, DIGITIZATION, AND RESILIENCE: A GLOBAL COMPARATIVE ANALYSIS

BY

BENJAMIN DZOBOKU

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A Thesis submitted to the Department of Economic Studies of the School of Economics, University of Cape Coast, in partial fulfilment of the requirements for the Doctor of Philosophy degree in Economics.

FEBRUARY 2025

DECLARATION

Candidates Declaration

I hereby declare that this thesis is the result of my original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature …… Date ……

Name: Benjamin Dzoboku

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisors' Signature……...……. Date ……..……

Name: Prof. James Atta Peprah

Principal Supervisors' Signature……...……. Date ……..……

Name: Prof. Emmanuel Ekow Asmah

ABSTRACT

Financial inclusion (FI) is a crucial aspect of development, yet 1.4 billion individuals worldwide are still excluded as of 2021. The concept and measurement of financial inclusion remained keenly contested, and there is scanty research on why FI gender and locational gaps continue to persist. Thus, this study examined three objectives: (i) regional differences in the incidence of financial inclusion, (ii) factors causing FI gender and locational gaps, and (iii) the effect of digital financial inclusion on financial resilience. Data for the study was sourced from the Global Findex Database (2021), which contains over 140,000 individuals from 138 countries. Four main econometric techniques namely the Foster-Greer-Thorbecke methodology, general dominance analysis, Blinder-Oaxaca Decomposition and Multilevel probit model were used to address the objectives. Results show significant regional variations in the incidence of financial inclusion, with EAP and ECA regions as the best-performers while SA, MENA and SSA regions being the worst-performers. Again, the most important predictor of people being unbanked globally is that their family member already owns an account, and this factor alone contribute to nearly 43.0 percent of the explained variations in the unbanked. Employment, education, age, and location are the four key factors for closing FI gender and location gaps. Digital financial inclusion significantly stimulates financial resilience across all regions, but its effect is more pronounced in deprived regions like SA, MENA, and SSA. Based on these findings, the study among others, recommended that policymakers should strengthen digital infrastructure and regulatory frameworks to ensure inclusive and resilient financial systems.

KEYWORDS

Digital financial inclusion

Financial inclusion

Financial inclusion gender gap

Financial inclusion location gap

Formal Financial services

Informal financial services

Financial resilience

Incidence of financial inclusion

Inequality of financial inclusion

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DEDICATION

To my mother, Mrs Awusi Kumi; my wife and children.

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LIST OF ABBREVIATIONS

DFI	Digital Financial Inclusion
FI	Financial Inclusion
GFD	Global Findex Database
FR	Financial Resilience
OLS	Ordinary Least Square
SA	South Asia
SSA	sub-Saharan Africa
EAP	East Asia and the Pacific
ECA	Europe and Central Asia
LAC	Latin America and the Caribbean
MENA	Middle East and North Africa
FGT	Foster-Greer-Thorbecke

CHAPTER ONE

INTRODUCTION

In an era of rapid technological advancements, financial inclusion has emerged as a critical driver of economic resilience, enabling individuals and businesses to access and utilize financial services efficiently. Digitization has further accelerated this process, transforming traditional banking systems, enhancing financial accessibility, and fostering economic participation across diverse economies. However, disparities in digital infrastructure, regulatory environments, and socioeconomic conditions create varying levels of financial resilience across countries. This study conducts a global comparative analysis to examine the relationship among financial inclusion, digitization, and economic resilience.

Background to the Study

Globally, there has been an unprecedented surge in financial inclusion since 2011. In 2011, about 51 percent of the world's population was financially included. This figure rose to 62 percent and 68 percent in 2014 and 2017 respectively. In 2021, nearly, 76 percent of the global population will be financially included (Demirgüç-Kunt et al., 2022). In essence, financial inclusion has surged rapidly by almost 50 percent over the past ten years. Similar trends and patterns hold in the region although there are significant variations in some regions. Beginning with East Asia and the Pacific (EAP) region, about 55 percent of its populace was financially included in 2011, and this figure rose to nearly 69 percent and 70 percent in 2014 and 2017 respectively. Remarkably, financial inclusion stood at almost 81 percent in the

EAP region by 2021. By implication, there has been an improvement in financial inclusion in the region by 47 percentage points over the past ten years.

Similarly, in the Europe and Central Asia (ECA) region, financial inclusion increased from 44 percent in 2011 to 58 percent 65percent in 2014 and 2017 respectively. In 2021, 78 percent of the population in the ECA region was financially included, resulting in a percentage rise of 77 over the ten years. In the Latin America and the Caribbean (LAC) region, financial inclusion stood at 52 percent and 54 percent in 2014 and 2017, respectively, back from 39 in 2011. By 2021, financial inclusion has risen to 73 percent. This means that financial inclusion has increased substantially by 87 percent in the LAC region during the past decade.

In the Middle East and North Africa (MENA) region, about 33 percent of its population was financially included as of 2011. Between 2014 and 2017, financial inclusion in the MENA region increases to 43 percent and 43 percent respectively. By implication, financial inclusion in the MENA region remained stagnant over this period and only rose marginally to 48 percent in 2021. This has made MENA the second worst-performing region in financial inclusion after South Asia over the last decade globally.

Likewise, the MENA region and the South Asia regions are equally not doing well in financial inclusion. For instance, only 32 percent of individuals in the region were financially included in 2011. Between 2014 and 2017, about 46 percent and 69 percent of the region's population were financially included. However, in 2021, financial inclusion in the region decreased from 69 percent to 68 percent thus, placing the region as the worst-performing region. Finally, in sub-Saharan Africa (SSA), about 23 percent of the population was financially

included in 2011. This figure rose to 34 percent and 43 percent in 2014 and 2017, respectively (Demirgüç-Kunt et al., 2022).. By 2021, financial inclusion in the region stood at 55 percent hence resulting in a rise in financial inclusion by over 139 percent over the ten years.

The Maya Declaration is the first global and measurable set of commitments by developing and emerging country policymakers to unlock the economic and social potential of the 2.5 billion poorest people through greater financial inclusion (Alliance for Financial Inclusion, 2011, p.2). Motivated by this ambitious initiative, the Baden-Baden G20 Communiqué pledged to promote financial inclusion worldwide (G20, 2017). Remarkably, out of the 17 Sustainable Development Goals (SDGs), seven including Goal 1(zero poverty), goal 5(gender equality), goal 8(decent work & economic growth) and Goal 13(climate action) are attainable through financial inclusion and thus, making it a key pathway to boosting shared prosperity around the world (World Bank, 2020b).

At the conceptual level, the definition and measurement of financial inclusion remain keenly contested. On the one hand, some schools of thought (Fouejieu et al., 2020; Immurana et al., 2021; Kim, 2016; World Bank, 2014) have defined financial inclusion as a unidimensional concept involving availability, access to, and use of formal financial services and hence measured it using only formal financial services like ownership of bank accounts, and the number of ATMs and bank branches. On the other hand, other scholars have maintained that financial inclusion is a multidimensional concept and thus, measured it using both formal and informal financial services (Balliester Reis, 2022; Koomson et al., 2020; Peprah et al., 2020).

Notwithstanding the divergent views about the conceptualization and measurement of financial inclusion, there is a consensus that financial inclusion both at the micro and macro levels stimulates the growth of economies and enterprises and enhances the welfare of individuals and households. By implication, financial inclusion has been widely recognized as the cornerstone of development (Demirgüç-Kunt et al., 2022; Zins & Weill, 2016). For instance, at the macro-level, financial services have been shown to promote the economic growth of countries (Kim et al., 2018; Sethi & Acharya, 2018; Sethi & Sethy, 2018; Van et al., 2021), reduces income inequality (Fouejieu et al., 2020; Kim, 2016), boost investments decisions(H. Chen et al., 2022; Demirgüç-Kunt & Singer, 2017; Lu et al., 2021) and enhance population health via an increase in life expectancy and decrease in mortality(Immurana et al., 2021).

There is also burgeoning literature on the effects of financial inclusion at the micro-level. For example, at the individual level, being financially included enables adopters to send, receive, and keep money for daily expenses (Demirgüç-Kunt et al., 2020), prepare for crises (Ahmed & Cowan, 2019), and make profitable investments for the future, such as setting up new businesses (Ajide, 2020; Banerjee et al., 2015), investing in health (Ahmed & Cowan, 2019; Demirgüç-Kunt & Singer, 2017), and education (Chiapa et al., 2016). At the household level, financial inclusion promotes mental health (Ajefu et al., 2020) and enhances household welfare in terms of food and education expenditures,(Ajefu, Demir, & Haghpanahan, 2020) and improves agricultural productivity among smallholder farmers (Peprah et. al, 2020)

On the business front, evidence shows traders and enterprises that have access to financial services are better able to withstand financial shocks than

those that do not (Moore, Niazi, Rouse, & Kramer, 2019). Financial inclusion is also known to encourage entrepreneurship (Ajide, 2020; Banerjee et al., 2015), For smallholder farmers, financial inclusion is a tool for improving agricultural productivity, and financial services like access to microcredit, savings, and insurance are key channels of influence (Peprah, Koomson, Sebu, & Bukari, 2021).

The outbreak of the COVID-19 Pandemic with its draconian restrictions and the Russian-Ukraine war has not only strengthened the call for deepening financial inclusion but also put a spotlight on digital financial services and amplified the urgency of accelerating digital financial inclusion globally (Demirgüç-Kunt et al., 2022; Pazarbasioglu et al., 2020). Financial inclusion refers to access to and use of financial services while digital financial inclusion refers to access to and use of digital financial services (Demirgüç-Kunt et al., 2022; Pazarbasioglu et al., 2020). Moreover, academics are following these developments keenly. Digital financial inclusion which entails the use of cost-effective, fast, and convenient digital means to provide populations that are currently underserved and financially excluded with a variety of financial services is abysmally low in developing countries. Studies (Auer et al., 2020; Čihák & Sahay, 2020; García Mora & Rutkowski, 2020; Goodwin-Groen, 2020; Machasio, 2020; Muthiora et al., 2020) have shown that persons who were digitally financially included were significantly more resilient during COVID-19 compared to those who were either financially excluded or financially included but non-digitized.

A crucial point is that the digital revolution is a potent instrument for enhancing governance in the financial sector and state institutions as well as

improving the lives of the poorest. Owing to digitisation in finance, implementers of social protection programmes can now send government transfers straight to the mobile phones of beneficiaries, cutting down on leakage and delays. During the COVID-19 crisis, this potential became a reality and lessened the burden on livelihoods. Additionally, when money moves more transparently from a government's budgets to its institutions and citizens, less opportunity for corruption exists(Demirgüç-Kunt et al., 2022).

Pazarbasioglu et al., (2020) have argued that digitisation in finance can provide more specialised financial services at scale while also lowering costs and improving speed, transparency, security, and availability. From opening an account to doing customer due diligence, verifying transactions, and automating other, product-specific activities, such as determining creditworthiness, digitization may minimise friction at every stage along the financial service life cycle. Thus, digital financial services are distinguished by low marginal costs per account or transaction and can result in scale-related cost savings (Pazarbasioglu et al., (2020).

Despite that, the adoption of Digital finance is the first step towards accessing a broader suite of financial services such as savings, insurance, microcredit, and remittances, over one-third of the world's population is financially non-digitized (Pazarbasioglu et al., 2020). Fundamentally, financial inclusion via non-digitised means not only weakens financial resilience but also is highly expensive, abusive, and encourages informality. Financial resilience refers to the ability to quickly raise the money required to respond to emergencies (Demirgüç-Kunt et al., 2022) or to access and rely on available external resources and assistance during difficult financial times (Salignac et

al., 2019). Digital finance eliminates the need for direct physical interaction in financial and retail transactions and quickens the process in cases of emergencies.

Statement of the Problem

Literature on financial inclusion abounds (Ajefu et al., 2020; Demirgüç-Kunt et al., 2020, 2022; Immurana et al., 2021; Klapper & Singer, 2015; Moore et al., 2019). However, from this plethora of research, three critical gaps emerged all of which motivate this study. The first eminent gap in the financial inclusion literature is a conceptual problem in that, to date, research on how best to measure financial inclusion remained regimented and findings continued to be inconclusive. While some scholars have championed formal financial services as the singular measure of financial inclusion, others have strongly rejected this notion and thus called for the informal financial sector to be included in the development agenda of financial inclusion to deepen the scope of inclusion for optimal gains.

According to the schools of thought (see e.g., Klapper & Singer, 2015; Zins & Weill, 2016) that have strongly rejected the notion of using only formal finance as the standard yardstick for measuring financial inclusion, there are two main shortcomings in measuring financial inclusion using either only formal financial services or account ownership. First, overreliance on only account ownership is likely to present a spurious picture of financial inclusion primarily because account ownership does not guarantee usage. According to the latest estimates from the Global Findex Database (2022), most of the accounts in developing countries are inactive or dormant-that is accounts with no deposits or withdrawals and no incoming or outgoing financial transactions

for at least a year. The reports further stress that the gap in account ownership between active and inactive groups is troubling in the developing world. In developing economies, for example, among account owners, 13 percent have an inactive/dormant account for a year. In other regions like Europe and Central Asia and MENA, this gap is as large as 16 percentage points. Meanwhile, nearly all accounts in high-income countries are active (Global Findex, 2022). So, the dominant use of this approach as a measure of financial inclusion does not reflect the realities on the ground and thus, reinforces the urgent need for re-conceptualising financial inclusion to give an accurate estimate of its incidence globally to inform policy and practice.

A second challenge with measuring financial inclusion based on only formal financial services is that it disproportionately affects developing countries such as SSA, South Asia, and MENA and favours high-income regions like EAP and LCA. In support of this viewpoint, Klapper and Singer (2015) assert that while over 100 million Africans are excluded from formal financial markets, the majority of them participate in the informal financial markets to improve their livelihoods by setting up new businesses and expanding existing ones. Thus, the authors called for policymakers, academics, and regulators in the financial ecosystem to revisit the conceptualization of financial inclusion and its policies and most importantly, to develop a deeper and more comprehensive understanding of how Africans participate in the financial markets.

Zins and Weill (2016) have joined this call and hence, predominantly questioned the conventional notion of measuring financial inclusion using only formal finance, especially in the context of developing economies. According

to these authors, financial markets in developing economies are highly dualistic consisting of both formal and informal but principally driven by the informal financial sector. Therefore, the concentration of formal finance as the benchmark for financial inclusion does not adequately represent the financial system in developing countries, it requires the inclusion of the informal sector due to the dualized nature of their financial markets.

In a nutshell, the challenges individually and cumulatively nuance the conceptual precision of financial inclusion. As a result, to overcome these shortcomings in the extant literature and advance our knowledge and understanding of financial inclusion worldwide, this study as its first objective seeks to examine the incidence of financial inclusion globally by combining both formal and informal financial services. The study further investigates the incidence of financial inclusion along gender and locational dimensions.

In addition to the conceptual gap in financial inclusion, recent evidence suggests that a significant proportion of the world's population remains unbanked and disturbingly, this figure keeps growing (Demirgüç-Kunt et al., 2022). In more specific terms, 1.4 billion individuals worldwide are still financially excluded in 2021 (Demirgüç-Kunt et al., 2022). What this means is that these individuals neither hold accounts with any financial institutions including microfinance nor have mobile money accounts.

Although at the international level, financial inclusion has improved by almost 50% over the last decade, however, this significant sign of progress remains substantially uneven both within and across regions of the world. For example, in East Asia and the Pacific (EAP), 302.7 million people remained unbanked in 2021 while in Europe and Central Asia (ECA), 69.0 million

persons remained unbanked in the same period (Demirgüç-Kunt et al., 2022; Global Findex, 2022). In Latin America and the Caribbean (LAC), 94.0 million individuals remained unbanked in 2021. These estimates are even worse for regions like sub-Saharan Africa (SSA), South Asia, and Middle East and North Africa (MENA) where about 189.1 million, 431.5 million, and 123.1 million of their populaces respectively remained financially excluded (Demirgüç-Kunt et al., 2022; Global Findex, 2022).

Regarding the second critical gap that constitutes this study's second objective, growing research on financial inclusion globally keeps documenting that gender and locational gaps in financial inclusion are rising at unprecedented levels. Yet, there is a dearth of research on why gender and locational gaps in financial inclusion exist and are on the rise globally. Knowing what accounts for the gender and location gaps in financial inclusion is of policy relevance for achieving universal access to finance.

At the regional level, gender and location gaps in financial inclusion remain in every region around the world but are disturbingly high in regions like SSA, South Asia, and MENA. In terms of gender gaps, globally, 78 percent of males and 74 percent of females are financially included thus, culminating in a gender gap of four percentage points in favour of males. The average gender disparity in financial inclusion in developing economies is 6 percentage points larger. By region, the gender gap in financial inclusion in SSA and MENA was 12 and 13 percentage points, respectively, which is twice the average for emerging economies and three times the global average. In Latin America and the Caribbean, the gender gap is seven percentage points. In comparison, the gender disparity in financial inclusion in East Asia and the Pacific, at 3

percentage points, is negligible. Along with income dimensions, the income gap in financial inclusion is mainly a developing country phenomenon. The income gap in financial inclusion between the wealthiest and the poorest individual in developing economies is terribly at eight percentage points. Rural-urban catch-up in financial inclusion remained an acute challenge across regions (Demirgüç-Kunt et al., 2022; Global Findex, 2022).

The third serious gap in the financial inclusion literature and thus constitutes this study's final objective relates to the digitization-resilience nexus (Agur et al., 2020; Demirgüç-Kunt et al., 2022; Lu et al., 2021; Moore et al., 2019; Ouma et al., 2017; Pazarbasioglu et al., 2020; Wang & He, 2020). This relatively significant body of literature that is gaining concern among the research community and policymakers alike has vigorously argued that virtually all the world's unbanked populations are in developing countries due to the low levels of digitization in the financial ecosystem in such economies. For instance, one billion individuals worldwide are financially included but digitally excluded. However, digital finance adoption is terrible in developing countries as about 1.6 billion people are digitally financially excluded despite being financially included. Moreover, 145 million unbanked population in these economies received agricultural payments via a non-digitized channel (i.e., in cash). In the public sector, 85 million unbanked adults' population still receive their payments in cash. In the private sector, 165 million unbanked adults still receive private sector wages in cash (Global Findex, 2022).

In the extant literature (Agur et al., 2020; Demirgüç-Kunt et al., 2022; Moore et al., 2019; Ouma et al., 2017), two main explanations are offered regarding why digital financial inclusion should serve as a pathway for

achieving universal access to finance and by extension, boosting shared prosperity especially in developing economies. First, digital financial inclusion has the potential to reduce the number of the unbanked population because it is the efficient, fast, and convenient way of reaching the poorest, women and those on low incomes. A second justification offered in the literature is that digital financial inclusion builds the financial resilience of beneficiaries against shocks. Digital inclusion enhances resilience by not only increasing the chances of savings but also significantly impacting the amount saved which prepares the beneficiaries to bounce back during and after shocks(Ouma et al., 2017).

Moore et al., (2019) have argued that digital financial inclusion may help low-income persons and households become more financially resilient by assisting them in preparing for risk, reducing risk, boosting investment in the fast of risk, and responding to shocks when they occur. On the same line of reasoning, Agur et al., (2020) underscored that digital financial services can be harnessed to respond to crises including the COVID-19 pandemic, and accelerate development. Moreover, Demirgüç-Kunt et al., (2022) put forward that digitizing government payments, private sector wages, and agricultural payments could reduce the number of unbanked populations worldwide and make them more financially resilient. Others have argued that regions that have high digital financial inclusion have high financial resilience (Balogun et al., 2020; Copestake et al., 2022; Katz et al., 2020).

Given the foregoing assertions and against the backdrop in the literature, this study as its second objective examines the digital financial inclusion-financial resilience nexus from a global perspective. Additionally, the study

tests whether the resilience-enhancing effect of digital finance adoption proposition holds along gender and location dimensions.

In a nutshell, regarding the financial inclusion-financial resilience nexus, previous research has focused on financial literacy and financial resilience (Klapper, & Lusardi, 2020; Lusardi, Hasler, & Yakoboski, 2021; Kass-Hanna, Lyons, & Liu, 2022). Others concentrated on financial inclusion and household well-being (Sakyi-Nyarko, Ahmad, & Green, 2022) and the gender-differential effect of financial inclusion on household financial resilience in Ghana (Sakyi-Nyarko, Ahmad and Green, 2022). However, key empirical gaps remain from the previous works. First, unlike the Ghanaian study by Sakyi-Nyarko, et al, (2022), the current study covers beyond Ghana. Secondly, none of the previous studies have examined the effect of digital financial inclusion on financial resilience and finally, no study has considered digital financial inclusion-financial resilience nexus along locational dimensional.

Objectives of the Study

The general objective of the study is to examine at the global level, financial inclusion, digital finance, and financial resilience nexus. Specifically, the study sought to:

1. Examine the regional differences in the incidence of financial inclusion.
2. Analyse factors causing gender and locational gaps in financial inclusion and.
3. Examine the effects of digital financial inclusion on financial resilience.

Hypotheses of the Study

(1) H_{01}: There are no significant regional differences in the incidence of financial inclusion worldwide.

H_{02} Factors such as Distance to financial institutions, cost of financial services, lack of documentation, lack of trust in financial institutions, religion, lack of income/money, family member already owns an account and lack of need have no equal importance in contributing to the unbanked.

H_{a1}: There is a significant regional difference in the incidence of financial inclusion worldwide.

H_{a2}: Factors such as distance to financial institutions, cost of financial services, lack of documentation, lack of trust in financial institutions, religion, lack of income/money, family member already owns an account and lack of need have equal importance in contributing to the unbanked.

(2) H_0: In terms of demographic characteristics and location of individuals, there is no significant differences in financial inclusion.

H_a: In terms of demographic characteristics and location of individuals, there is no significant differences in financial inclusion.

(3) H_0: There is no significant effect of digital financial inclusion on financial resilience.

H_a: There is significant effect of digital financial inclusion on financial resilience.

Contributions of the Study

The contributions of this study are organised around four themes namely contributions in terms of its originality, contributing to existing literature, policy, and practice. Several studies have explored how access to financial

services in general and financial inclusion in particular influences various outcomes like poverty, economic growth, inequality, entrepreneurship, etc. However, in recent times, financial inclusion has been overly criticised for its concentration on formal financial services and less on informal finance. Aside from this pitfall, existing studies have largely focused on specific regions of the world at different points in time making it difficult for harmonisation of knowledge on financial inclusion for policy veracity. To the best of the researcher's knowledge, this study is the first of its kind to examine the financial inclusion-digital financial inclusion-financial resilience nexus from a global outlook. Thus, the strength of this study lies in its use of a global dataset, which allows the researcher to arrive at a generalizable inference. In terms of novelty, a single study that addresses financial inclusion, digital finance and financial resilience simultaneously is rare. To the extent that this study addresses these three germane themes all at once on a global scale is novel.

This study contributes to three strands of extant literature**.** First and foremost, the study contributes to the literature that has examined financial inclusion in general. Such previous literature finds that financial inclusion improves the livelihoods of individuals, enables them to prepare for crises, and makes investments such as setting up new businesses, and investment in education and health. However, this study departs from such previous studies distinctly as it examines not only how the incidence of financial inclusion varies across the world, but also how the informal financial sector contributes to the financial inclusion deepening globally.

Secondly, this study contributes to the literature that has specifically focused on micro-level determinants of financial inclusion in country-specific

contexts and cross-country levels. Although those previous works have enhanced our knowledge and understanding of what determines micro-level financial inclusion, they do not explain why most of the world's population remained unbanked. Therefore, this study departs from previous studies as it does not try to explain the determinants of financial inclusion, but, rather, the study aims to examine the incidences of inclusion and why a majority of the world's populace is financially excluded.

Finally, there is also a strand of literature that has predominantly employed either accounts ownership or formal finance as the main measure of financial inclusion. There are growing concerns that this approach often nuances the nature and conceptual clarity of financial inclusion in the context of the developing world where a greater proportion of the population participate in the informal financial sector. Given this shortcoming and for policy targeting, this study diverges from extant literature in that it comprehensively captured both the formal and informal finance and analysed how that approach influences the regional variations in the incidences of global financial inclusion. Besides, to design financial inclusion strategies that are both sector– and context–relevant, complete knowledge and understanding of various types of finance (formal and informal) is fundamental.

The findings of this study will inform policy regarding the designing of financial inclusion strategies that are gender and location specific. Findings from this study indicate that financial inclusion policies and programmes are vague or generic and are likely to be counterproductive because there are significant regional variations in the incidence of, gender and locational gaps in financial inclusion globally. Our decomposition analysis revealed that

practitioners in the finance industry must make it a point to address issues of women's economic empowerment, promoting female education and eliminating income inequalities to close the gaps in financial inclusion.

Delimitation of the Study

This study uses a global dataset. It considers the six main regions of the world: EAP, ECA, LAC, South Asia, MENA, and SSA. Regarding digital financial inclusion and financial resilience relationships, the study used digital financial products and socio-economic conditions to determine the individual's financial resilience level. However, the study did not focus on all aspects of resilience. Precisely, the study concentrated on financial resilience.

Organisation of the Study

This study is organised into seven chapters. The rest of the chapters are organised as follows. Chapter two captures a review of literature related to the study. Both theoretical and empirical literature on financial inclusion, digital financial inclusion, and financial resilience are reviewed. Next is chapter three which discusses the methodology of the study. It gives a detailed description of the scope of the study, theories that provide theoretical antecedents to the study, the variables used for the study, and the econometric models used for the study. Chapter four focuses on the analysis and discussions of results for the first empirical chapter. In chapter five, the study presents an analysis and discussion of results obtained from the second empirical chapter. Chapter six captures the analysis and discussion of results for the third empirical chapter. Finally, the study is concluded in chapter seven. This seventh chapter captured the summary of findings and made recommendations based on findings and conclusions from the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter presents a comprehensive review of literature that bears on financial inclusion in terms of theory, concepts, and empirical findings from similar studies. The chapter begins with a theoretical review that sets the theoretical base for the research. This is followed by a conceptual discussion related to concepts of financial inclusion. Next, the chapter provides a synthesis of empirical review that considers similar studies undertaken by other researchers on the research problem. Finally, the chapter concludes with a summary of the key research gaps.

Theoretical Review

This study is founded on two major competing theories of financial inclusion namely the public good theory of financial inclusion and the vulnerable group theory of financial inclusion.

Public good theory of financial inclusion

According to the public good theory of financial inclusion, the state as a social planner is charged with the responsibility of promoting the welfare of its citizens by providing basic services. As a result, financial services must be seen as a basic necessity and hence the government must ensure that all citizens have unrestricted access to formal financial services (Ozili, 2020). By implication, the provision of financial services to the whole population should be seen as a public good for the benefit of all. This also means as formal financial services are a public good and cannot be restricted from access by individuals, they cannot be prohibited from being used by them and thus, everyone will be able

to use basic banking services without paying a fee. Relating this theory to our study, everyone in the population may participate in the formal financial system, which will benefit everyone, as the availability of financial services to one individual does not influence those services' availability to others. This also calls for broadening the scope of financial services.

This theory contends that financial inclusion helps the whole population and leaves no one behind. The theory further argues that anybody who opens a formal bank account should be entitled to free debit cards and free use of automatic teller machines (ATMs) by the public good concept. Financial service providers, such as financial institutions, will also be liable for financing the cost of providing financial services as a sunk cost of operating a banking firm. Financial institutions may get subsidies from the government to help them deal with any costs that may arise from offering free financial services. Also, a government may offer a free lump sum cash deposit into any citizen's bank account; the only requirement is that the account must be legitimate. This means that those who are unable to pay their debts and meet their basic needs will have the opportunity to become economically empowered when financial inclusion is viewed as a public benefit.

However, it is important to emphasize that this theory has several limitations. First, the idea that everyone should benefit from financial inclusion regardless of age, income status, educational attainment, and other personal characteristics is unrealistic. A second limitation of this theory relates to the funding of the financial institution. Achieving universal financial inclusion where financial services will be offered for free will require full public funding which is true for almost every public good. What this means is that the limited

resources meant for prioritizing sector services like health, education, and sanitation will be traded for providing financial services. Besides, the theory does not recognize or appreciate the private sector as an enabler of financial inclusion. Finally, the theory is highly questionable in the context of developing economies where financial institutions are mostly led by the private sector.

Vulnerable group theory of financial inclusion

Unlike the public good theory of financial inclusion, the vulnerable group theory of financial inclusion strongly opposes the ideology that financial services should be formalized and made public good for all. The vulnerable group theory of financial inclusion contends that there is already inequality in society which has made some sections of our society highly vulnerable in most facets of life. Persons such as women, the poorest, old age, and children are the vulnerable populations who require additional support to catch up in daily life. Therefore, the theory posits that a country's initiatives or programmes for financial inclusion should focus on assisting the most vulnerable members of society, such as the underprivileged, youngsters, women, and the aged who are most negatively impacted by economic hardship and natural disasters (Ozili, 2020). Relating this theory to the context of our study, examining issues of gender and locational gaps in financial inclusion is very crucial.

The theory further argues that it is logical to integrate these people into the formal financial system because they are typically the ones most affected by financial crises and economic downturns. A pathway to achieving this is through government-to-person social cash transfers into the bank accounts of underprivileged people. Making government-to-person social cash transfer payments into the formal accounts of the underprivileged, the young, women,

and the elderly may encourage other underprivileged, the young, the female, and the elderly to enter the formal financial sector and own a formal account to receive the benefits of the government social cash transfer, thereby increasing the rate of financial inclusion for disadvantaged groups.

Furthermore, when social cash transfers are successful and vulnerable members of society are provided with additional resources for achieving financial inclusion, it may give them the impression that the income inequality that affects them is cushioned, giving them a chance to catch up with other aspects of society. The basic tenets of the theory are that demographic segments of our society are vulnerable and therefore, initiatives to encourage financial inclusion should concentrate on these people.

Feminist political theory

Feminist political theory is a branch of political philosophy that examines how traditional political concepts and institutions have historically marginalized or excluded women's perspectives and interests (Bryson, 2016; Martin, 2004). The theory seeks to challenge and reconstruct political theories and practices to promote gender equality and address issues of power, justice, and representation. Relating this to the context of this study, state must pursue institutional practices and formulate policies that promote equality in access to and use of digital financial services (Bryson, 2016; Martin, 2004). Further, there should be a level playing field men and women can compete in access to and use of digital financial services (Bryson, 2016; Martin, 2004).

Liberia feminism

The first wave of feminism included the traditional viewpoint known as liberal feminism. It frequently serves as the starting point for comparisons when dissecting modern conceptions of feminism. “Society has a false belief that women are by nature less intellectually and physically capable than men,” it contends (Tong, 2018, p. 2). The theory holds that there should the playing field should be levelled so that women and men can competed equally and have the equal chances of succeeding. Women should not be rejected on opportunities by virtue of being females. Relating this theory to the contest of this study, there should a levelled playing field for both men and women’s access to and use of digital financial services. Moreover, women’s access to and use of digital financial services should not be restricted because they are females. By implication there should be equal right to access, ownership and use of digital financial services.

Radical feminism

Radical feminism is an extension of the liberal feminism. According to radical feminists, institutional, social, and cultural differences that existed for decades should be expediated. There should be drastic measures in addressing gender equality in everywhere and every section. In addition to emphasizing individual freedom of speech, radical feminism considers androgyny as a possibility (Fotaki & Pullen, 2024; Tong, 2018). It explicitly contends that patriarchy's low regard for feminine traits—rather than femininity itself—is the primary source of the issue. Gender discrimination would be less prevalent if society valued feminine traits more. All kinds of gender expression, including androgyny, femininity, masculinity, and many forms that are or are not

consistent with biological sex, should be "turned up" in this way (Fotaki & Pullen, 2024; Tong, 2018).

Marxist/socialist feminism

This feminist lens takes socioeconomic disparities and social justice viewpoints into account (Fotaki & Pullen, 2024; Tong, 2018). Women were viewed as men's property and a vital component of the capitalist system from a commodity standpoint for many centuries. Marxist feminists contend that the demise of our capitalist civilization is the first step toward achieving gender equality (Fotaki & Pullen, 2024; Tong, 2018). This viewpoint addresses issues such disparities in compensation, barriers to obtaining tenure or success in particular disciplines, and the frequent absence of family-friendly policies at many higher education institutions and national organizations. According to socialist feminists, women can only really be free when they strive to eradicate both cultural and economic oppression (Fotaki & Pullen, 2024; Tong, 2018).

State of financial inclusion around the world

This section analyses the state of financial inclusion over the past decade (2011-2021) across the six regions. The six regions considered are the East Asia & Pacific (EAP), the Europe & Central Asia (ECA), the Latin America & Caribbean (LAC), the Middle East and North Africa (MENA), South Asia (SA) and Sub-Saharan Africa (SSA). Since 2011, there has been an extraordinary global rise in financial inclusion. In 2011, roughly 51 percent of people worldwide have access to financial services. In 2014 and 2017, these percentages increased to 62 and 68 percent, respectively. Almost 76 percent of the world's population will be financially included by 2021 (Demirgüç-Kunt et al., 2022). In essence, over the past 10 years, financial inclusion has increased

fast by about 50%. EAP refers to East Asia & Pacific, ECA refers to Europe & Central Asia, LAC refers to Latin America & Caribbean, MENA refers to the Middle East and North Africa, SA South Asia, SSA Sub-Saharan Africa

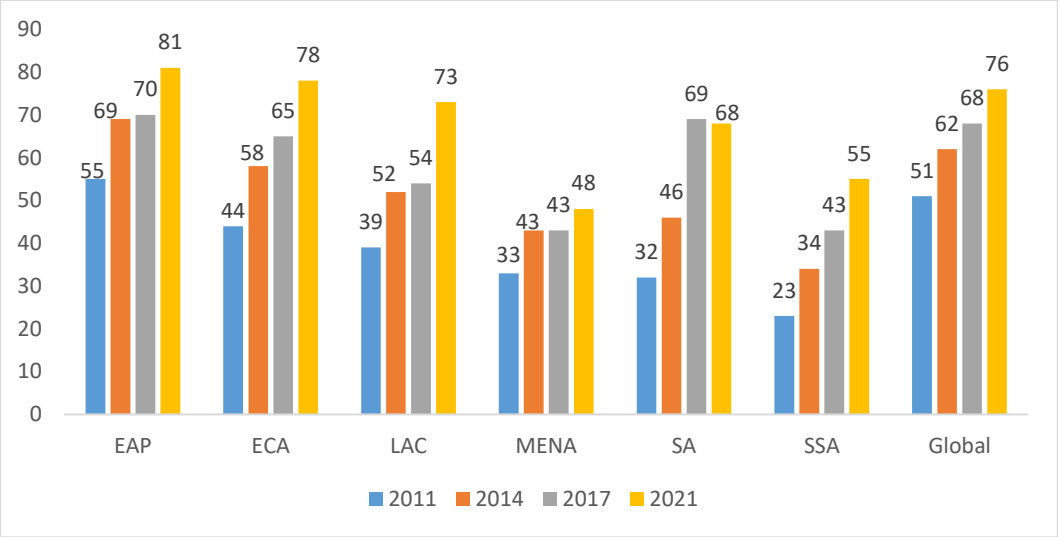

Figure 1: State of financial inclusion across the six regions of the world.

Sources: Authors' computation based on Global Findex (2011-2021)

In terms of regions, there are notable differences in certain regions. Starting with the East Asia and Pacific (EAP) region, in 2011 over 55 percent of its population had access to bank accounts; in 2014 and 2017 this number increased to roughly 69% and 70%, respectively. Surprisingly, by 2021, financial inclusion had reached over 81 percent in the EAP region. By implication, there has been a 47-percentage point increase in financial inclusion in the region during the past 10 years.

Likewise, the EAP region, financial inclusion in the Europe and Central Asia (ECA) area climbed from 44 percent in 2011 to 58 percent and 66 percent in 2014 and 2017, respectively. The percentage increase over the ten years was 77, with financial inclusion reaching 78 percent of the population in the ECA region in 2021. Financial inclusion in Latin America and the Caribbean (LAC)

decreased from 39 per cent in 2011 to 52 percent in 2014 and 54 percent in 2017. Financial inclusion reached 73 percent by 2021. This indicates that during the past 10 years, financial inclusion has significantly expanded by an average of 87 percent throughout the LAC region. As of 2011, around 33 percent of the population in the Middle East and North Africa (MENA) region was financially included. Further, financial inclusion rises to 43 percent and 43 percent respectively, between 2014 and 2017 in the region. Therefore, financial inclusion in the MENA zone remained constant throughout this period and only slightly increased to 48 percent in 2021. Due to this, during the past ten years, the MENA area has performed worse than South Asia in terms of financial inclusion.

Similarly, both the MENA area and South Asia are struggling with financial inclusion. For instance, in 2011 just 32 percent of people in the region were financially included. Approximately 46 and 69 percent of the region's inhabitants were financially included between 2014 and 2017. However, in 2021, the region's financial inclusion dropped from 69 percent to 68 percent, making it the worst-performing region. Finally, in 2011 around 23 percent of the population in Sub-Saharan Africa (SSA) was financially included. In 2014 and 2017, these percentages increased to 34 percent and 43 percent, respectively (Demirgüç-Kunt et al., 2022).

The conceptual evolution of financial inclusion

This section considers how the concept of financial inclusion has evolved over the period in terms of definitions and measurements. It is organised in two parts. The first part looks at how various actors (academics, researchers, and international organisations) in financial inclusion literature

have viewed the concept. The next section is devoted to the debate surrounding how best to measure financial inclusion. For each argument, we outline the conceptual and measurement gaps to set the pace for our study.

Definition of financial inclusion

The concept of financial inclusion grew out of the microcredit movements of the 1970s and rapidly gained popularity in the 2000s (Consultative Group to Assist the Poor (CGAP), 2023). Today financial inclusion has become an integral part of the global developmental agenda with a wide range of actors recognizing as an enabler of everything, from agricultural growth to educational advancement to humanitarian responses (CGAP, 2023). Financial inclusion is a common objective of many international organizations that establish standards and national governments, and it is increasingly recognised as a vehicle for attaining policy objectives even outside of the financial industry.

Fundamentally, there is no universally acceptable definition of financial inclusion. Several scholars in the field have defined the concept to suit their orientations. For instance, Fouejieu et al., (2020), define financial inclusion as access to and use of formal financial services. In part of Ozili, (2018), the availability of and access to financial services for all members of the population, especially the poor and other disadvantaged groups is known as financial inclusion. Meanwhile, Sahay et al., (2015) define financial inclusion as the access to and use of formal financial services. From the foregoing definitions, two key conceptual gaps are evident. The First conceptual gap is the idea that financial inclusion is a concept of formal finance. A key challenge with this line of reasoning is that policy discussion surrounding financial inclusion must

concentrate more on the formal financial sector and little or no informal financial sector. A second challenge with this ideology is that financial policies and strategies emanating from such debates will only be relevant in the context of advanced economies. This is mainly because the informal financial sector dominates in developing or emerging economies. Therefore, policy efforts that do not recognise the crucial role of informal finance will be counterproductive, at least in the developing world.

Recognising the complex and multidimensional nature of financial inclusion, international organisations often view the concept from multiple lenses. For instance, to the World Bank, (2022), financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs and this includes transactions, payments, savings, credit, and insurance delivered responsibly and sustainably. Similarly, for CGAP (2023), financial inclusion means that all persons and businesses have access to and are empowered to use affordable, responsible financial services that meet their needs. From the definitions of both the World Bank and CGAP, financial inclusion goes beyond individuals to include enterprises. By implication, the two organisations recognize the imperative role of finance in the growth of businesses.

However, it is important to underscore that despite this similarity, both organisations have some differences in terms of their conceptualisation of financial inclusion. While the World Bank places emphasis on sustainability, CGAP stresses empowerment. The second conceptual gap in the financial inclusion literature relates to the lack of conceptual precision on what should constitute financial inclusion. As noted in the foregoing paragraphs, some

definition puts more weight on the disadvantaged or vulnerable populations while others place emphasis on formal finance. In the same vein, some have not recognised the role of finance in the development agenda of businesses and by extension neglected the private sector.

Financial exclusion: Voluntary versus self-exclusion

Research on financial services at the micro-level can broadly be classified into two strands namely financial inclusion and financial exclusion. We begin with the financial inclusion literature which mostly consists of those that have examined the determinants of financial inclusion (Govindapuram et al., 2023; Kara et al., 2021; Tinta et al., 2022; Zins & Weill, 2016). and those that have focused on its effects (Abdallah Ali et al., 2022; Bukari et al., 2021; Imai et al., 2010; A. Islam & Maitra, 2012). The determinants of financial inclusion literature find that socio-demographic variables such as age, gender, income, employment, and education are key predictors of financial inclusion or access to financial services (Govindapuram et al., 2023; Kara et al., 2021; Tinta et al., 2022; Zins & Weill, 2016). Studies focusing on the impact of financial inclusion find that access to financial services reduces household poverty (Ali et al., 2022; Bukari et al., 2021; Imai et al., 2010), enables beneficiaries to respond to health shocks, and smoothens consumption (Islam & Maitra, 2012), increases educational outcomes (Stein & Yannelis, 2020).

Financial exclusion defined.

Leyshon and Thrift (1995) were the first to coin the term "financial exclusion" to describe the procedures that restrict some socioeconomic groups from having access to formal financial services in the United Kingdom. Financial exclusion refers to the lack of access to and use of financial services

and products. The financial exclusion literature finds that financial exclusion achieves the opposite of inclusion (Dupas et al., 2018; Joassart-Marcelli & Stephens, 2010; Johnston Jr & Morduch, 2008; Koku, 2015; Melnik & Shy, 2015; Solo, 2008).

At the conceptual level, financial exclusion is still undergoing evolution and hence tolerates different connotations. Based on access and usage, financial exclusion consists of the unbanked (lacking access to all or not using any financial services and products) and the underbanked (having access to limited financial services and products). In terms of reasons, financial exclusion can be due to voluntary reasons (exclusion due to the individual's idiosyncratic reasons or factors which are mostly demand-side factors) or involuntary reasons (exclusion due to reasons outside the individual's influence and they are mostly supply-side factors).

Schism on the measurement of financial inclusion

Likewise, the conceptualisation of financial inclusion, and the measurement of financial inclusion are keenly contested in the extant literature. There are two main schools of thought on how to adequately measure financial inclusion. On the one hand, there are those (Asuming et al., 2019; Fouejieu et al., 2020; Immurana et al., 2021; J.-H. Kim, 2016; Le et al., 2020; Ofori-Abebrese et al., 2020; Van et al., 2021; World Bank, 2014) who see financial inclusion as a unidimensional concept and therefore, advocate that it should be measured uni-dimensionally using only formal financial services. According to these proponents, financial inclusion can be measured using the number of ATMs, branches, deposits, and credits from banks. For instance, Van et al., (2021) measured financial inclusion using three indicators of formal finance—

the number of commercial bank branches, the number of ATMs, and the ratio of bank credit to GDP. Along the same lines, Immurana et al., (2021) measured financial inclusion using five proxies of formal finance namely ATMs, commercial banks, number of borrowers, and outstanding deposits.

Another study by Ofori-Abebrese et al., (2020) followed the same unidimensional approach by focusing on only formal finance such as the number of deposits, ATMs, and outstanding loans as a percentage of GDP. On the same line of reasoning, Le et al., (2020) viewed financial inclusion as a unidimensional concept and thus narrowly measured it by concentrating on only formal finance such as the number of Automated Teller Machines (ATMs), number of commercial banks, outstanding deposits and loans with commercial banks. Assuming employed only three indicators of formal finance-ownership of account, savings, and borrowing as a measure of financial conclusion while Park and Mercado Jr, (2018) used five proxies-number of ATMs, bank branches, borrowings from commercial banks, deposits and credits to GDP ratios.

A major flaw with measuring financial inclusion using only formal finance is that the approach does not reflect the prevailing realities, especially in the developing world and thus, policy recommendations from such studies can be misleading. According to (Sarma, 2008), utilizing lone variables like only formal finance to gauge financial inclusion can be deceptive and so could not accurately depict the level of financial inclusion. In Sarma's view, creating an index of financial inclusion by incorporating both formal and informal financial services would allow for simple country-regional comparisons and, as a result, make it easier to monitor the development of financial inclusion

programmes over time and space. Yet none of the earlier cross-country studies that looked at financial inclusion-digitization-resilience nexus accomplished that and hence in this study, we address this measurement gap.

To overcome the aforementioned shortcomings in the unidimensional approach, other scholars have vigorously opposed unidimensional and therefore argue that financial inclusion is a multidimensional concept and thus, measured it using both formal and informal financial services (Reis, 2022; Koomson et al., 2020; Peprah et al., 2020). According to the multidimensional perspective, financial inclusion is complex, and multifaceted comprising both the formal and informal sectors, therefore, any conceptualization or measurement of financial inclusion that does not respect this multidimensionality is severely deficient.

Nevertheless, a serious lacuna in the multidimensional studies is that their multidimensional indices of financial inclusion were applied only in country-specific contexts. For example, studies by both Koomson et al., (2020) and Peprah et al., (2020) were on Ghana. Although Balliester Reis's, (2022) work was a cross-country study, it did not include informal finance in the construction of the financial inclusion index. The overarching question of whether and how measuring financial inclusion to capture both formal and informal finance can influence the incidence of inclusion and financial resilience at the global scale remained largely unanswered. Given this dearth of literature, we examine the incidence of financial inclusion, digital financial inclusion, and financial resilience relationships globally.

Empirical review

This section synthesises the previous studies on financial inclusion, digitisation, and financial resilience. The section is organised into six main themes. The first relates to previous research on financial inclusion, digital finance, and financial resilience at the Global level. Similar issues are presented in the second, third and fourth themes for the Europe and Central Asia (ECA) region, East Asia, and the Pacific (EAP) region, Latin America and the Caribbean (LAC) region and the South Asia region respectively. In the fifth and sixth segments, we review existing studies on financial inclusion-digitisation-resilience nexus for the Middle East and North Africa (MENA) region and the sub-Saharan Africa (SSA) region respectively. Finally, the section documents the gaps in the literature and provides motivation for this study.

Global level

In a cross-country study of 107 developed and developing economies, (Fouejieu et al., 2020) examine the relationship between financial inclusion and inequality. Three analytical approaches were employed namely the Ordinary Least Squares (OLS) panel fixed effect, Generalised Least Squares (GLS), and the Dynamic Panel GMM. The result showed that financial inclusion contributes significantly to reduction in inequality. Although our study also focuses on financial inclusion at the global level, our study distinguished itself from Fouejieu et al.'s, (2020) work in three important ways. First, unlike Fouejieu et al., (2020) who attempted to understand the financial inclusion-inequality nexus at the macro-level, this current study focuses on offering insights into financial inclusion at the micro-level.

The second distinction relates to the measurement of financial inclusion. (Fouejieu et al., 2020) have taken a narrow approach to understanding financial inclusion by concentrating on only formal financial services like the percentage of individuals with bank accounts, the percentage of borrowings from banks, and the percentage of persons with credit and debit cards. As noted in the preceding sections, financial inclusion is multifaceted and multidimensional consisting of both formal and informal financial markets. Thus, any study that fails to appreciate this complex and multidimensional nature of financial inclusion is insufficient for optimal policy.

Similarly, Shen et al., (2021) studied the link between digital financial inclusion and economic growth in 105 countries around the world. Employing the Spatial Dubin model, results show that digital financial inclusion has a positive effect on economic growth and spillover effects in 86 neighbouring countries. Withstanding that this present study also considers digital financial inclusion globally, it departs from previous literature in two ways. Rather than focusing on digital inclusion and economic growth as in the case of Shen et al., (2021), our study examines digital financial inclusion on financial resilience. Aside from this divergence, our study also further investigated the gender and locational heterogeneities and the link between digital financial inclusion and financial resilience, an important element that is missing in extant literature. Finally, in addition to examining digital financial inclusion-financial resilience on a global scale, this study analysed the global incidences of financial inclusion and crucially, examined the factors contributing to the rising number of unbanked populations worldwide.

Myovella et al., (2020) studied digitalization and economic growth through a comparative analysis of Sub-Saharan Africa and OECD economies. Using the Generalized Linear Methods of the moment (GMM) on 41 SSA and 33 OECD economies, results indicate that digitization has a significant positive effect on economic growth across the two regions. Further, the authors found that while the effect of broadband internet is more pronounced in the OECD compared to SSA, the effect of mobile telecommunications is significantly higher for the latter compared to the former. Here too, we emphasize that our study distinguishes itself from Myovella et al., (2020)in two important ways.

Rather than following Myovella et al., (2020) to obscurely measure digital financial inclusion by using only three indicators -mobile subscriptions, internet users, and broadband subscriptions, we depart them by employing a more comprehensive measure of digital financial inclusion as we employ twenty indicators consisting of formal and informal finance. Secondly, drilling our analysis down to micro-level issues that allow for policy targeting and precision is unique.

Finally, Park and Mercado Jr, (2018) analysed the link between financial inclusion, poverty, and income inequality in 176 economies worldwide. Five proxies were used to measure financial inclusion-the number of ATMs, bank branches, borrowings from commercial banks, deposits, and credits to GDP ratios. Their OLS estimates show that while financial inclusion is significantly correlated with lower levels of poverty and income inequality, key macroeconomic variables such as per capita income, rule of law, and education are significant determinants of financial inclusion globally. Once again, our study is not interested in the determinants of financial inclusion. Moreover, our

study does not seek to establish the relationship between financial inclusion, poverty, and income inequality. Instead, we aim to explain what accounts for gender and locational gaps in financial inclusion globally. We further, computed the global incidence of inclusion and unearth the major reasons or factors contributing to the burgeoning rate of the unbanked population worldwide.

ECA Region

An important observation from the extant literature is that country-specific research on financial inclusion in Europe and East Asia abounds. However, cross-country evidence within ECA as a region remained scanty. In addition to methodological challenges, the few studies (Demirgüç-Kunt et al., 2019; Huang et al., 2021; Le et al., 2020) that have examined financial inclusion in the region left several important issues all of which motivate this study. For example, Huang et al., (2021) examine the nexus between financial inclusion and economic development in a sample of 27 countries in Europe. Measuring financial inclusion using the number of bank branches and ATMs and applying a fully modified least squares (FMOLS) method, the authors found that financial inclusion significantly and positively influences economic development measured as GDP and per capita GDP in the region. Along the same lines, Le et al., (2020) examined the impact of financial inclusion on CO2 emissions in the region. Employing the Driscoll-Kraay Standard errors for linear panel models, the authors found that financial inclusion significantly increases the C02 emissions.

Although our study also explores financial inclusion in the ECA region, we depart from previous works (Huang et al., 2021; Le et al., 2020) in three distinct ways. First, both works viewed financial inclusion as a unidimensional

concept and thus narrowly measured it by concentrating on only formal finance such as the number of Automated Teller Machines (ATMs), number of commercial banks, outstanding deposits and loans with commercial banks. Given this severe flaw in measuring financial inclusion, our study aims to approach financial inclusion as a multidimensional concept by combining both formal and informal financial services and products.

A second distinction between this study and the extant literature (Huang et al., 2021; Le et al., 2020) lies in the area of underlying objectives. Le et al., (2020) sought to examine the link between financial inclusion and CO2 emission. Huang et al., (2021) focused on financial inclusion and economic development. Our study neither attempts to examine the link between financial inclusion and CO2 emission nor financial inclusion on economic development. Rather, we aim to explore the incidence of financial inclusion in the ECA region and distinctively establish the link between digital financial inclusion and financial resilience. Finally, unlike previous studies (Huang et al., 2021; Le et al., 2020) which both focused on the macro-effects of financial inclusion, this study focuses on the micro-effects of financial inclusion. Besides, the current study focuses on how access to and use of digital financial services stimulates individuals' financial resilience which is more relevant compared to macro-level studies that focused country-level effect using aggregate proxy variables.

Another study by Le et al., (2019) has examined financial inclusion and its impact on financial efficiency and sustainability in Asia. Based on the Feasible Generalised Least Square (FGLS) estimation, results show that rising financial inclusion negatively affects financial efficiency while positively influencing financial sustainability. It is important to emphasise that while Le

et al.'s, (2019) work shed light on our understanding of financial inclusion, financial efficiency, and financial sustainability relationships in Asia, little is known about the financial inclusion-financial resilience nexus in the region. Thus, this study diverges from Le et al.'s, (2019) work by examining the incidence of financial inclusion in general and digital financial inclusion-financial resilience links in particular. Likewise, previous research (Le et al., 2020), and Le et al., (2019) have also taken a unidimensional approach to financial inclusion, an approach that has been heavily criticized in the extant literature as being inadequate for policy veracity.

Still within the ECA region, (Demirgüç-Kunt et al., 2019) looked at recent trends and research agenda in financial inclusion in the Europe and Central Asia regions. The authors came out with two conclusions for future research in the region. First, the unbanked population in the ECA region keep growing and this calls for urgent and robust research into why a rising rate of unbanked population in the region. A second conclusion from their findings was that gender and locational gaps in financial inclusion in the region remained significant and that a potential question for future research is why substantial gender, and locational gaps exist in the regions. This study aims to address these two key research gaps regarding the ECA region. In addition to addressing the pertinent research gaps, this study further explores similar issues in other contexts for a more comparable and comprehensive policy targeting.

EAP Region

Research in financial inclusion in East Asia and the Pacific region is not different from other regions in terms of the fundamental gaps. Like other regions of the world, three key gaps in financial inclusion literature exist regarding the

EAP region. First, there is overreliance on formal finance as a measure of financial inclusion even though financial inclusion is multidimensional comprising both formal and informal financial services. A second gap in the financial inclusion literature within the EAP region is contextual. Available studies in this field within the region are either focused on macro-level effects or country-specific effects. As an illustration, Chen et al., (2022), studied the dynamic common correlated effects of financial inclusion on foreign direct investment in the East-Asia and Pacific (EAP) countries. Using the so-called dynamic common correlated effects estimation, results indicate that financial inclusion positively and significantly influences foreign direct investment in both the short run and the long run in the region.

Here, we re-emphasize those proxies such as the number of ATMs, number of commercial bank branches, outstanding deposits, and loans for measuring financial inclusion may be misleading. Our financial inclusion index consists of twenty indicators of formal and informal financial services and products. Aside from this, our study aims to establish the impact of financial digitisation on resilience in the region. (Didenko & Buckley, 2021) asserts that financial inclusion and remittances remained a serious problem in the EAP region and that digitisation could offer the best solution to this challenge. Our study comes in handy to shed light on how digitization can avert the financial inclusion problem in the region.

Islam (2016) argues that increasing and diversifying lending and financial tools for increased access and promoting financial literacy is paramount for achieving sustainable development in East Asia and the Pacific region. Increasing and diversifying financial tools necessitate the adoption and

upscaling of digital technologies which can reach a wider range of population, reaching hard-to-reach areas, and overcoming inefficiency. Salman stresses that digital financial inclusion could close the gender-based gaps in financial inclusion in East Asia and the Pacific region by enabling women to access financial services quickly and conveniently. To engender evidence-based policy debates, this study aims to provide empirical evidence on how such digitization closes gender gaps in the financial inclusion-financial resilience nexus.

LAC Region

Motta and Gonzalez Farias (2022) sought to establish the determinants of financial inclusion in Latin America and the Caribbean (LAC). Applying a probit model on the micro-level dataset of 18 economies, results indicate that income and education are the key drivers of financial inclusion in the LAC region. Although our study also uses micro-level datasets, we depart from Motta and Gonzalez Farias's (2022) work in that we are neither interested in ascertaining the determinants of financial inclusion nor concentrating on only LAC as a region. Instead, we carried out a global comparative analysis of the incidences of financial inclusion, why the rising rate of unbanked population and finally, established the link between digital financial inclusion and financial resilience.

Kazemikhasragh and Pineda (2022) examine financial inclusion and education in the face of the pandemic emergency due to Covid-19 in Latin America and the Caribbean. The authors found that significant gender gaps in financial inclusion exist in the LAC region. However, the study failed to provide answers to why the gender gaps in financial inclusion exist. Against this

backdrop, we attempt to offer insights into factors explaining both the gender and locational gaps in financial inclusion.

Mitchell et al., (2019) studied the effect of financial Inclusion on Value-Added Taxes in Argentina, Brazil, and Chile. Proxying financial inclusion by bank population, their fixed effect regression shows that financial inclusion significantly increases VAT-to-GDP in these economies. Here too, we repeat that our study's focus is not on understanding financial inclusion-taxes dynamics. Instead, this study seeks to understand the incidence of inclusion, factors causing the gender and locational gaps in inclusion and finally ascertain the effect of digital inclusion on resilience.

Roa and Mejía (2018) examine the financial decisions of households and financial inclusion: evidence for Latin America and the Caribbean. The authors found that ownership of a bank account depends on the socioeconomic status of the household. Additionally, adults with only a high school diploma or less are also more likely to live in families with low socioeconomic status and utilize financial. However, our study is distinctive in that it does attempt to establish the determinants of financial inclusion or drivers of ownership of bank accounts. Rojas-Suarez & Amado (2014) analysed the financial inclusion gap in Latin America and found there are still rising and significant gender gaps in the region. However, the authors failed to offer explanations for the existence of those gender gaps which is of policy relevance.

MENA Region

While general financial inclusion in the MENA region is still in its infancy, there is a dearth of regional research on how digital financial inclusion enhances resilience outcomes in the region. For instance, Alhassan et al., (2021)

examined the relationship between political instability and financial inclusion in the Middle East and North Africa (MENA). Their probit estimation shows that political instability is positively correlated with lower levels of financial inclusion. While Alhassan et al.'s, (2021) the study is important in understanding the political economy of financial inclusion, the study does not address the incidence of inclusion in the region. Besides, the study concentrated on the drivers of financial inclusion. However, our study considers the incidence of financial inclusion, what variables account for the gaps in inclusion and how digital inclusion influences resilience in the region.

In another study, Neaime et al., (2019) analysed the impact of financial inclusion on poverty, income inequality, and financial stability in six economies in the MENA region. Using panel data for the period 2001 to 2015 and applying GMM and GLS econometric models, results show that financial inclusion reduces inequality but has no statistically significant effect on poverty in the region. Moreover, the authors found that financial inclusion promotes financial stability. Rather than focusing on the relationship between financial inclusion, poverty, and inequality, our study focuses on the link between financial inclusion and financial resilience in the MENA region. Again, unlike Neaime et al., (2019) which considers only six countries, we extend our sample space to include 13 economies in the region. This in our view, will allow for a more generalized inference at the regional level.

In another study, Özşuca, (2019) explored the gender gap in financial inclusion in the MENA region. Their results show that employment is the major factor contributing to the gender gap in financial inclusion while age and education match up closely. Notwithstanding that our study also looks at the

gender gap in financial inclusion in the MENA region, our study is unique to Özşuca's, (2019) study in two important ways. First, Özşuca, (2019) used ownership of bank accounts, savings, and borrowing as the only measure of financial inclusion. We argue that this approach to measuring financial inclusion is unsatisfactory as it does not capture the informal financial sector. To overcome this weakness in their work, we included several informal financial services and products to comprehensively measure financial inclusion. Again, unlike Özşuca, (2019) who concentrated on only gender gaps, we extended our analysis to include locational gaps because empirical evidence regarding that gap is almost non-existent. Finally, we distinguish our work from Özşuca, (2019) by exploring further, the incidence of inclusion and also reasons for the rising level of the unbanked population.

Within the MENA region, Naceur et al., (2017) examined the relationship between Islamic banking and financial inclusion in MENA. The authors found that despite that there were opportunities for physical access to financial services, the uptake of these services was woefully unsatisfactory. The regression results showed a positive correlation between access to credit by households and firms and financing investment decisions; however, this link was relatively weak.

SA Region

Murshed et al., (2023) examined the determinants of financial inclusion in South Asia. Overall, the econometric research findings show that although faster economic growth in South Asia hinders financial inclusion, internal conflict resolution, more mobile phone subscriptions, and reduced levels of corruption increase financial inclusion. Moreover, it has been discovered that

resolving internal disputes indirectly increases financial inclusion by moderating the relationship between economic development and financial inclusion and mediating remittance inflows-relationship of financial inclusion.

Qamruzzaman and Wei (2019) investigated the relationship between financial innovation and financial inclusion in the South Asian economies using monthly data over the period 1990 to 2018. Based the autoregressive lagged distributed model and system GMM estimator, results showed a positive correlation between financial innovation and financial inclusion for both the short-run and the long-run. Given that Qamruzzaman and Wei (2019) have failed to address crucial issues of digital financial inclusion and financial resilience links, we provide answers to this link empirically. Further, we showed empirically factors accounting for the gender and location gaps in financial inclusion. Finally, we provide evidence of the incidence of inclusion in the region.

Anwar et al., (2017) carried out a comparative analysis of financial inclusion in South Asia. Their findings show that financial inclusion is generally low across countries in the region. Similarly, Mani, (2016) analysed financial inclusion in South Asia in terms of its relative standing, challenges and initiatives. The authors found that usage of financial services and adoption of digital finance services is low in the region. implying a high number of unbanked populations in the region. The authors also found that the gender gap is so high as there are significantly higher males participating in the financial markets compared to females. Unfortunately, previous works (Anwar et al., 2017; Mani, 2016) have not only failed to examine why rising unbanked

population in the region but also what accounts for the gender gaps in financial inclusion in the region.

SSA Region

There has been extensive research on financial inclusion within the sub-Saharan African region both at the macro-level and micro-level. However, three gaps call for future research. First, despite the growing research on financial inclusion in the region, empirical evidence has failed to explain why gender and locational gaps exist and continue to rise in sub-Saharan Africa. Secondly, while available cross-country studies provide insights into only macro-level effects, financial inclusion has been poorly measured in those previous works. Finally, country-specific studies that have attempted to comprehensively capture financial inclusion in their estimations have also not focused on crucial issues like digitization and resilience. In the subsequent paragraphs, we synthesize this literature.

Using a macro-level dataset spanning from 2004 to 2018, Immurana et al., (2021) examined the effect of financial inclusion on population health in Africa. Based on the panel system GMM, the authors found that financial inclusion promotes population health. However, it is important to emphasize that this study departs from Immurana et al.'s, (2021) work in two ways. First, unlike Immurana et al., (2021) which focuses on financial inclusion on health, this study focuses on financial inclusion in general and digital financial inclusion in particular on financial resilience. Again, rather than narrowly measuring financial inclusion as in the case of Immurana et al., (2021), our study looks at financial inclusion from a multidimensional viewpoint by focusing on both formal and informal finance. Besides, our study looks at

micro-dimensions of financial inclusion and not the macro-proxies which can be misleading. Finally, Immurana et al., (2021) used PCA to generate financial inclusion index even though the PCA approach has been heavily criticised (Balliester Reis, 2022).

Ofori-Abebrese et al., (2020) estimated the effects of financial inclusion on welfare in 33 sub-Saharan African economies using the Ordinary Least Squares technique. Results revealed that financial inclusion substantially improves the welfare in various countries. However, Ofori-Abebrese et al.'s, (2020) the study failed to comprehensively capture financial inclusion because their financial inclusion index captures only formal finance. Meanwhile, their study was on sub-Saharan Africa, a region fundamentally driven by informal finance. Again, their focus was on financial inclusion and welfare proxied by the human development index a measure that has been overly criticized in the extant literature as being a poor indicator of welfare. Finally, to the extent that Ofori-Abebrese et al., (2020) have failed to address serious issues of endogeneity in their estimation, their study is weakly positioned for optimal policy.

Ajide, (2020) examines whether financial inclusion promotes entrepreneurship in Africa. Using Random effect, IV estimation, and robust least squares techniques, results show that financial inclusion significantly promotes entrepreneurship in Africa. Asuming et al., (2019) carried out a comparative analysis of the financial inclusion of 31 countries in sub-Saharan Africa. Based on their probit estimation, results indicate that personal characteristics like age, education, gender, and wealth and macroeconomic variables like GDP and the presence of banks are significant determinants of

financial inclusion in the region. It is important to emphasise, that our study diverges from this previous work as it never attempts to estimate the determinants of financial inclusion. Rather, this study aims to examine how financial inclusion in general and digital financial inclusion, in particular, enhances beneficiaries' financial resilience. Besides, Asuming et al., (2019) measured financial inclusion using only three indicators—ownership of account, savings, and borrowing. However, our study in its measurement of financial inclusion (See Table A8 in the Appendix) incorporated several dimensions of financial services both formal and informal and therefore distinguishes itself from the extant literature.

Tita and Aziakpono, (2017) explored the relationship between financial inclusion and income inequality in sub-Saharan Africa based on the Global Findex dataset (2011). The authors found that there is a positive link between income inequality and various components of financial inclusion such as formal savings, electronic payment, and business account use. While Tita & Aziakpono's (2017) study offers insight into the link between financial inclusion and income inequality, the study failed to adequately capture financial inclusion as it focused on only formal finance. This inadequacy has also led to little appreciation of the issues examined especially in the context of SSA given that the region is largely driven by the informal financial sector.

Given the surge in the adoption of mobile money in sub-Saharan Africa, Ouma et al., (2017) sought to ascertain whether the pervasive use of mobile banking serves as a boom for savings mobilization in the region. Using OLS and the logit models, the authors demonstrate that the availability and use of mobile phones for financial services increases households' chance of saving

money. Access to mobile financial services not only increases the possibility of saving but also significantly affects how much is saved, possibly because of how often and easily such transactions may be completed using a mobile phone. Once again, the present study departs from Ouma et al. (2017) work as it neither focuses on the determinants of savings nor the effect of mobile money on savings mobilisation. Rather, this study offers insights into how broadening the scope of financial inclusion can enhance our understanding of the incidence rate of financial inclusion and how that can influence digitization-resilience links. Besides, Ouma et al.'s, (2017) study was solely on the SSA region, and the extent to which this present study looks at global issues is distinguished.

Aside from cross-country research on financial inclusion, there are country-specific studies on financial inclusion in the sub-Saharan Africa Region (Gyasi et al., 2021; Koomson et al., 2020; Mossie, 2023; Peprah et al., 2020). Mossie, (2023) examined the determinants, motivations, and barriers to financial inclusion in Ethiopia. Applying a probit model on three indicators of financial inclusion (formal accounts, formal savings, and formal credits), results show that both voluntary exclusion (lack of money, a family member has an account) and involuntary exclusion (distance to financial institutions and lack of documentation) are significant barriers to financial inclusion.

In Ghana, Gyasi et al., (2021) have studied the effect of financial inclusion on food insecurity. Using logistic regression, the authors found that financial inclusion significantly lowers the odds of hunger and skipping meals like breakfast. Similarly, Danquah et al., (2021) analysed the effect of financial inclusion on poverty reduction in rural Ghana. Accounting for potential endogeneity in the link between financial inclusion and poverty through a

bivariate probit estimation, the authors found that rural households with access to basic financial services were significantly more likely to be nonpoor compared to their counterparts without access to such financial services. Others have found that financial inclusion enhances productivity of farmers (Peprah et al., 2020) and reduces poverty and vulnerability to poverty (Koomson et al., 2020).

Chapter Summary

Notwithstanding the extensive studies on financial inclusion around the world, three eminent research gaps remain that this study seeks to address. The first critical gap in the financial inclusion literature is a conceptual problem in that, to date, research on how best to measure financial inclusion remained regimented and findings continued to be inconclusive. While some scholars have championed formal financial services as the singular measure of financial inclusion, others have strongly rejected this notion and thus called for the informal financial sector to be included in the development agenda of financial inclusion to deepen the scope of inclusion for optimal gains. Against this backdrop in literature, this study as part of its first objective seeks to examine how broadening the scope of inclusion to incorporate both formal and informal fiancé influences the global incidence of financial inclusion.

Regarding the second gap, growing research on financial inclusion globally keeps documenting that gender and locational gaps in financial inclusion are rising at unprecedented levels. Yet, there is a dearth of research on why the burgeoning rate of gender and locational gaps in financial inclusion globally. To fill this lacuna and advance our knowledge and understanding of gender-based and location-based gaps in financial inclusion, this study aims to

examine the factors accounting for the gender and location gaps in financial inclusion around the world. Finally, while research on the financial inclusion-resilience nexus is now emerging, empirical evidence on digital finance-financial resilience is scant and evidence on the global front is nearly missing. Thus, the study as part of its third objective seeks to examine the effect of digital financial inclusion on financial resilience globally.

CHAPTER THREE

RESEARCH METHODS

Introduction

The thesis generally focuses on a global comparative analysis of financial inclusion, digital finance, and financial resilience nexus. Thus, this chapter discusses the research design and research philosophy that underpin the empirical investigation. It further details the data and its sources, definitions and measurement of key variables, the theoretical and empirical models as well as the econometric estimations strategies that have been implemented to test the hypotheses underlying the study.

Research Design

A research design entails the laid down procedures and assumptions that guide the researcher in his/her enquiry (Creswell, 2018). Further, research design serves as the overall plan linking the conceptualized problem to the key and attainable empirical findings and thus, guides the researcher to seek answers specific to the research problem under investigation through formulation and testing of hypotheses (Creswell, 2018). Broadly, in Social Sciences, every empirical investigation falls into all or any of the following categories of research design: quantitative, qualitative, and mixed designs or methods. This thesis employed the quantitative research methodology. A quantitative research design or methodology is an approach that enables researcher(s) to numerically describe phenomena and establish relationships among variables through the testing of theories and or hypotheses using statistical techniques (Creswell, 2018; Stockemer, 2019). Every research design has a philosophical rationale underpinning it.

Research Philosophy

The philosophical foundation for this thesis and thus, quantitative research design is that the nature of the world is based on discrete numbers which are in quantitative relationships. Therefore, the social world can be understood through the quantification, and measurement of relationships empirically which are said to be objective, and unbiased and hence provide reliable estimates as well as a way of gaining knowledge. In the context of this thesis, our understanding of the financial inclusion ecosystem around the world in terms of its incidence, digitization, and financial resilience nexus can be understood through the quantification and measurement of their relationships empirically which is objective, unbiased and reliable. It is worthy to underscore that the philosophical underpinnings of quantitative research methodology are based on positivism which has its ontological and epistemological assumptions about the nature of the world. The ontological assumption of quantitative research methodology is that there is only one ultimate truth, an objective reality that exists independent of human perception (Sale et al., 2002; Slevitch, 2011).

The epistemological aspects of the quantitative methodology try to address philosophical questions "How do we know what we know?', 'what is truth knowledge or legitimate truth?', "What is the nature of the relationship between the researcher (i.e., the knower) and what can be known?". The epistemological assumption holds that the researcher and the phenomenon to be researched are independent entities and as a result dualist or objectivist (Benton & Craib, 2023). By implication, the social world of facts stands independent of the knower (researcher) and hence objective (Benton & Craib, 2023). Therefore, from a quantitative epistemological viewpoint, the researcher can objectively

study the phenomenon without being influenced by it or influencing it (Benton & Craib, 2023; Sale et al., 2002). In the context of this study, the researcher can study the relationship between financial inclusion, digital finance, and financial resilience without being influenced by it or influencing it.

In sum, this thesis is founded on the positivist philosophy which holds that experience is the primary source of knowledge and hence knowledge is gained through experience or empirical evidence (i.e., empiricism). In the context of positivism, Science is the highest and, in some cases, the only source of knowledge. Therefore, we should extend the scientific method or scientific research to the study of the social world as in the case of this study. By implication, Science offers an objective and unbiased basis for social and policy interventions. Overall, positivists place much emphasis on mathematics or statistics and econometric tools in the knowledge-generating process.

Data Description

The main dataset used in the analysis in this thesis is sourced from the Global Findex Database (DFD) (2021).[1] The DFD is a transformative initiative by the World Bank aimed at ascertaining individuals' access to and use of both formal and informal financial services and products around the world. Further, the survey seeks to offer insights into people's financial behaviour that enables financial resilience. The survey covers a wide array of financial issues from payments (both digital and non-digital) to savings and borrowing. Initiated in 2011, the Global Findex Survey has since produced four waves. This study employed the most recent survey conducted between 2021 and 2022.

[1] For details of survey methodology for the 139 economies included in the Global Findex 2021 survey and database, see World Bank (2022).

In addition to eliciting information on individuals' access to and use of financial services, the nationally representative survey captures respondents' socio-demographic characteristics such as age, employment status, educational attainment, and gender. In total, over 140,000 individuals in 138 economies representing 97 percent of the world's population were covered in the survey with each country containing at least 1,000 respondents (World Bank, 2022b).[2] The whole sample of 143,887 individuals in 138 countries was utilized for the analysis in the current study. For the regional level analysis, data was disaggregated into six regions based on the World Bank regional classifications as follows. East Asia and the Pacific (EAP), Europe and Central Asia (ECA), Latin America and the Caribbean (LAC), South Asia (SA), Middle East and North Africa (MENA), and sub-Saharan Africa (SSA).[3] It is important to emphasise that globally, rural respondents are underrepresented in dataset given that they constitute 22 percent of the entire sample compared to 78 percent for the urban. This pattern holds uniformly across the six main regions except regions such as SSA and SA where there is almost equal representation between rural and urban respondents. However, it is important to emphasise that given the study's focus which to digital financial inclusion and to the extent that there is even distribution of respondents across rural and urban areas in SSA and SA which are the most financially deprived regions, sample distribution will not affect the findings. In other regions which are mostly advanced regions, the urban respondents are likely to drive the findings.

[2] Except countries with very large population like China, India and Russia with sample sizes of 3500, 3000 and 2011 individuals, respectively

[3] For the details of regional classification and the list of countries in each region, See Table C in the Appendix

Measurement of Variables

There are two main dependent variables used for the analysis in this thesis. The first dependent variable of interest is financial inclusion. This variable was needed to examine the first and second objectives of this study. The second dependent variable of interest is financial resilience, and this variable is needed to analyse the third objective which seeks to examine the effect of digital financial inclusion on financial resilience.

Measurement of financial inclusion

The first objective seeks to examine the incidence of financial inclusion around the world. Therefore, to compute the incidence of financial inclusion, we need to first compute an index of financial inclusion. As argued in the introductory section (see Chapter One), previous works have heavily relied on formal financial services as the primary indicators for measuring financial inclusion. This thesis argues that such an approach does not produce reliable estimates of the financial inclusion ecosystem in developing economies mainly because it is well documented that most of the individuals in developing economies are excluded from the formal financial services sector. To this group of excluded individuals, the informal financial services market becomes the main point of inclusion. Against this background, the current study contributes to the literature, by computing an index of financial inclusion that incorporates both formal and informal financial services.

Accordingly, an index of financial inclusion was constructed using 23 indicators from both formal and informal financial services and products. The motivation for incorporating indicators from both formal and informal financial services and products into the generation of the index is well laid out in the

introduction of this thesis. Table A8 in the appendix displays the definitions and measurement of these 23 indicators and their summary statistics. Each of the 23 indicators is a dichotomous variable that takes on a value of 1 if the respondents consume the financial service or products and 0 otherwise. The index of financial inclusion was constructed using the additive approach that entails summing up the indicators additively. After computation, the index of financial inclusion ranges from 0 to 23 where 0 means total financial exclusion and 23 reflects a higher level of financial inclusion. It is worth noting that the proportion of individuals in our sample who are excluded from the financial services market is 27.42%. What this means is that this of people lacks access to and use of both formal and informal financial services.

As an alternative to the additive approach, a second index of financial inclusion was generated using the Principal Component Analysis (PCA). However, with the PCA approach, I observed that for the index of financial inclusion, only one component has an eigenvalue greater than one but sadly that retained component explains less than 50 percent of the variations in the index. This was further supported by the KMO test carried out. Therefore, I resorted to the Multiple Correspondence Analysis (MCA) which is a generalization of PCA. With the MCA, two dimensions had been retained for each of the indexes of financial inclusion and crucially, the retained dimensions explained at least 82 percent of the variation in the index. This second index of financial inclusion based on the MCA method was employed as a robustness check to the main estimates.

There are two main independent variables of interest in the first objective which examines the incidence of financial inclusion globally. The first

independent variable of interest is the group variable capturing the regional classification. This variable is categorical with the six main regions as categories as follows: EAP, ECA, LAC, MENA, SA and SSA. The second and final independent variable of interest in the first objective is population which serves as the size variable. Population is measured as the total number of adults aged 15 and above in each region. Fortunately, the GFD dataset (2021) already contains populations for each of the 138 economies and the measure of this variable was based on the World Bank's World Development Indicators for population sizes of the world's economies as of 2020.

Finally, and as stated earlier, financial inclusion is the dependent variable for the second objective which aims to determine the causal factors for the financial inclusion gender and location gaps. The index of financial inclusion used for analysing the incidence of financial inclusion in the first objective is employed for the analysis in the second objective. The key independent variables of interest in the second objective are the individual's gender and place of resilience (that rural-urban location). Gender was measured as a dummy that takes a value of 1 if the individual is a female and 0 for a male. Similarly, the location variable takes a value of 1 if the individuals reside in a rural area and 0 for urban.

The causal factors included the individual's age, educational attainment, employment status and wealth status. Age of the individual is measured as categorical as follows: Age 15-25 years, Age 26-36 years, Age 37-47 years, Age 48-58 years and Age 59 years and above. Educational attainment is categorical with three groups as follows: Basic education, secondary education, and tertiary education. Employed is a dummy and takes a value of 1 if the individual is

employed and 0 otherwise. Wealth status is categorical with five groups as follows: poorest 20 percent, second 20 percent, middle 20 percent fourth 20 percent and richest 20 percent. The summary statistics of these variables are displayed in Tables 3 and 4.

Measurement of financial resilience

The second dependent variable of interest is financial resilience (FR). This variable was used to analyse the third objective which seeks to examine the effect of digital financial inclusion on financial resilience. Two direct questions from the GFD survey (2021) address financial resilience. The GFD survey asked respondents: *Imagine that you have an emergency, how difficult would it be for you to come up with an amount equal to 5 per cent of gross national income (GNI) per capita in local currency (i.e., equivalent to US$3,300);* within the next 30 days? Or within the next seven days?

For each of these questions, the respondent selects from five response categories: “Very difficult”, “Somewhat difficult”, “Not difficult at all”, “Don’t know”, and “Refused”. Question 2 has an additional response option as “I could not come up with the money”. Consistent with the GFD measure of financial resilience, the “Don’t know” and “Refused” responses were excluded from the analysis. Thus, responses for “Not difficult at all” were recorded as 1=resilient and “Very difficult” and “Somewhat difficult” as 0=non-resilient. This dichotomous variable based on the first question becomes the main measure of financial resilience. For the robustness check, another dichotomous variable was generated from the second question that requires the respondent to come up with US$3,300 within the next seven days in cases of emergency. Respondents

were classified as resilient and thus corded as 1 if they responded, "Not difficult at all" and 0 otherwise.

Measurement of digital financial inclusion

The key independent variable of interest in the third objective of this study is digital financial inclusion (DFI). To enable the study, to examine the effect of digital financial inclusion on financial resilience, two separate indexes of digital financial inclusion were built based on two approaches implemented in the construction of the financial inclusion index. Unlike the financial inclusion index which consisted of 23 indicators, the digital financial inclusion index comprises 22 indicators from both formal and informal financial services. The first index of DFI was constructed using an additive approach that requires aggregating the 22 indicators additively. After the computation, the index ranges between 0 and 17. Where 0 denotes that some individuals are digitally financially excluded, and they constitute 33.10% of our sample. Although 22 indicators were deployed in generating the index of DFI, the maximum score of 17 (which constitutes less than one percent of the sample) implies that no individual in the sample has or utilised all 22 indicators of digital financial services (see Table A9).

Econometrics Specifications and Estimations Strategies

This section details the main econometrics estimation techniques that were employed in the analysis of the three objectives of this study.

Theoretical model specifications

The main theoretical model adopted in this study is by Foster et al., (1984) known as the Foster-Greer-Thorbecke (FGT) model for the computation of

incidence. The FGT model computing incidence, depth and severity of outcomes and the model in its original form follows: $Y_\alpha=\frac{1}{n}\sum_{i=1}^{q}(\frac{gi}{z})^\alpha$

Where Y_0, Y_1, Y_2 measure the incidence, depth and severity of Y respectively where Y could be financial inclusion, financial exclusion, poverty, etc depending on the objective of the analyst.

$z > 0$ according to the model is a predetermined Y line. n is the total population while q is the proportion of individuals lacking Y.

α =0, 1, 2.

When α = 0, the distribution of individual inclusion levels is obtained, with each included individual having inclusion level 1. Therefore, the headcount ratio Y_0 or H is simply the average for the total population.

When α = 1, the normalised gap of G_i is employed as the included persons' level of inclusion in turn differentiates them among the population and thus, represented by Y_1. Finally, Y_2 yields α = 2 which requires squaring the normalised gap and therefore weights the gaps.

Empirical model specification for Objective One

To examine the incidence of financial inclusion across the six main regions based on the Foster et al., (1984) framework,

we let (F_1, F_2, $F_3 \ldots F_n$) to be a vector of an individuals' financial inclusion level each of the six regions and let Z>0 be the average(mean) of the financial inclusion (F_α). We further let G_i (Z-F_i) be the inclusion of an individual from the average while Q=Q(F, Z) be the number of included individuals in each region and N=N(F) be the total number of individuals (i.e., total population) in each region and thus, we can write $F_\alpha=\frac{1}{N}\sum_{i=1}^{Q}(\frac{Gi}{Z})^\alpha$ where $\propto$ measures

financial inclusion aversion. Equation (1) measures the incidence of financial inclusion.

$$Incidence\ of\ financial\ inclusion_0 = \frac{No.of\ individuals\ in\ each\ region}{\text{Total population}} \quad (1)$$

Recall that α = 0 which yields a distribution of individual inclusion levels in which each included individual has inclusion level 1 holds. The normalized gap $G_i = \frac{(Z-F_i)}{Z}$ of an included individual i, or the degree of inclusion (i.e., incidence) represented as a proportion of the average (mean), would consequently serve as the basis for the FGT class of inclusion. F_α is the average level of inclusion in the given population (region), with $Gserving_i^a$ serving as the measure of an individual's level of inclusion for an included person and 0 serving as the corresponding measure for those included.

Note that in the FGT methodology and the context of this study, three key variables are required for computing incidence. Group variable which in our study is the region classified into six: EAP, ECA, LAC, MENA, SA and SSA. The second important variable is the size variable which is the total population in each region. The last variable is the financial inclusion index which is normalised to range between 0 and 1 for easy interpretation.

Empirical model specifications for objective two

To analyse the factors accounting for the gender and locational gaps in financial inclusion worldwide, the study followed the Blinder-Oaxaca Decomposition for estimating inequalities. The Blinder-Oaxaca decomposition is primarily used to ascertain the proportion of the differences in mean outcomes between two groups that may be attributed to group variations in the level of

explanatory variables and differences in the magnitude of regression coefficients (Hlavac, 2014; Jann, 2008).

To compute the gender- and location-based inequalities in financial inclusion and thus determine the causal factors, let Y be the outcome variable which is financial inclusion. Further, let the individual's age, educational attainment, employment status and wealth status be a set of predictors. Additionally, supposed there are two groups namely males and females represented by M and F respectively for the case of gender inequalities. In the same line of reason, supposed that in the case of location, the two groups of interest are rural, and urban dwellers are represented by R and U respectively. Estimating the gap (G) in financial inclusion levels between the groups based on gender and location is given by Equations (1) and (2) respectively as follows:

$$G = E(Y_M) - E(Y_F) \quad (1)$$

$$G = E(Y_U) - E(Y_R) \quad (2)$$

Where $E(Y)$ denotes the expected value of the outcome variable (financial inclusion) and this is accounted for by the group differences in the predictors. Based on the linear model

$$Y_i = X_i'\beta_i + \varepsilon_i \quad (3)$$

Where $E(\varepsilon_i) = 0 \; and \; i \in \{M, F, \}$ in the case of gender. Similarly, $i \in \{M, F, \}$ in the case of location, X is a vector containing the predictors (age, educational attainment, employment status and wealth status) and a constant. $\boldsymbol{\beta}$ contains the slope parameters and the intercept and ε is the error term which is normally distributed with a mean zero and a variance of 1. Given Equations (1) and (2), the mean outcome differences can be expressed as the difference in the linear prediction at the group-specific means for the regressors as follows.

$$G = E(Y_M) - E(Y_F) = E(X_M) - E(X_F) \quad (5)$$

$$G = E(Y_U) - E(Y_R) = E(X_U) - E(X_R) \quad (6)$$

Since

$$E(Y_i) = E(X_i'\beta_i + \varepsilon_i) = E(X_M)'\beta_M - E(X_F)'\beta_F \quad (7)$$

$$E(Y_i) = E(X_i'\beta_i + \varepsilon_i) = E(X_U)'\beta_U - E(X_R)'\beta_R \quad (8)$$

With $E(\beta_i)$=β_i and (ε_i)=0 by assumption

To identify the contribution of the group differences in predictors to the overall difference (i.e., the gap), equations (7) and (8) can be rearranged as follows.

$$G = [E(Y_M) - E(Y_F)]'\beta_F + E(X_F)'(\beta_M - \beta_F) + [E(Y_M) - E(Y_F)]'(\beta_M - \beta_F) \quad (9)$$

$$G = [E(Y_U) - E(Y_R)]'\beta_R + E(X_R)'(\beta_U - \beta_R) + [E(Y_U) - E(Y_R)]'(\beta_U - \beta_R) \quad (10)$$

Equations (9) and (10) represent a 'three-fold' decomposition where the outcome difference (the gap or G) is divided into three parts as follows.

$$G = E + C + I \quad (11)$$

$E = [E(Y_M) - E(Y_F)]'\beta_F$ representing the first parts of Equation (9) amount to the part of the differential that is due to group differences in Endowments (that is the part of the Gap attributed to group differences in predictors like age, educational attainments, etc). In the same vein, $E = [E(Y_U) - E(Y_R)]'\beta_R$ representing the first parts of Equation (10) amount to the part of the differential that is due to group differences in Endowments (that is the part of the Gap attributed to group differences in predictors like age, educational attainments, etc).

$C = E(X_F)'(\beta_M - \beta_F)$ representing the second part of the equation (9) measures the part of the Gap that is attributed to differences in coefficients

including differences in the intercept. The same is true for $C = E(X_R)'(\beta_U - \beta_R)$ in equation (10). $I = [E(Y_M) - E(Y_F)]'(\beta_M - \beta_F)$ and $I = E[E(Y_U) - E(Y_R)]'(\beta_U - \beta_R)$ in Equations (9) and (10) respectively, measure the part of the gap that is attributed to differences in the interaction terms (that is the interaction terms account for the fact that differences in endowments (E) and coefficients (C) exist simultaneously between the two groups (males vs females and rural vs urban dwellers). Table 1 displays the variables and their expected signs.

Table 1: Expected signs of variables in the financial inclusion gender and location gaps models

Variable	Expected sign
Dependent variable: Financial resilience1	
Independent variables	
Digital financial inclusion	+
Gender (1=female; 0=male)	
Age (in years) is the respondent's age	+
Education is the educational attainment of the respondent (0=basic, 1=secondary, 2=tertiary)	+
Employed is the respondent's employment status (1=employed; 0=unemployed)	+
Location is the respondent's place of residence (0=urban; 1=rural)	-
Wealth/income is the wealth or income status of the respondent (0=Poorest 20%; 1=Second 20%; 2=Middle 20%; 3=Fourth 20%; 4=Richest 20%)	+/-
EAP: East Asia and the Pacific; **ECA**: Europe and Central Asia; **LAC:** Latin America and the Caribbean; **MENA:** Middle East and North Africa; **SA**: South Asia; **SSA**: Sub-Saharan Africa	

Source: Author's construct (2024)

Empirical model specifications for estimating the relative importance of the major reasons accounting for the unbanked/financial exclusion.

To determine the relative importance of the major reasons (factors) accounting for the unbanked (financial exclusion), the study estimated the following general dominance model in Equation (11)

$$CX_v = \sum_{i=1}^{p} \frac{CX_v^i}{P} \quad (11)$$

Where CX_v is the general dominance statistic which is the between-order average of the within-order averages (Budescu 1993).

CX_v^i is the within-order averages of the eight factors of unbanked (*Distance too far, financial services too expensive, lack of documentation, lack of trust in financial institutions, religious reasons, lack of money, a family member already has an account, and no need for financial service*

P is the between-order averages for the eight factors of unbanked which are *Distance too far, financial services too expensive, lack of documentation, lack of trust in financial institutions, religious reasons, lack of money, a family member already has an account, no need for financial service*

Empirical model specifications for objective three

To examine the effect of digital financial inclusion (DFI) on financial resilience (FR), the study estimated the following multilevel model in Equation (12)

$$Pr\left(F^R{}_{icj} = 1 \middle| D^{FI}{}_{icj}, \boldsymbol{W}_{icj}, \boldsymbol{v}_j\right) = H\left(D^{FI}{}_{icj}\beta + \boldsymbol{W}_{icj}\boldsymbol{\lambda} + \boldsymbol{X}_{icj}\boldsymbol{v}_j\right) \quad (12)$$

Where $F^R{}_{icj}$ measures the financial resilience of individuals i in country c of region j. Note that $F^R{}_{icj}$ is dichotomous and thus, takes a value of 1 whenever the individual is financially resilience and 0 otherwise. $D^{FI}{}_{icj}$ is an

index capturing the digital financial inclusion of an individual i in country c of region j. $\boldsymbol{W}_{icj}$, is a vector of controls capturing the individual's age, their educational attainment, employment status and wealth status. Age is the individual is measured as categorical as follows: Age 15-25 years, Age 26-36 years, Age 37-47 years, Age 48-58 years and Age 59 years and above. Educational attainment is categorical with three groups as follows: Basic education, secondary education, and tertiary education. Employed is a dummy and takes a value of 1 if the individual is employed and 0 otherwise. Wealth status is categorical with five groups as follows: poorest 20 percent, second 20 percent, middle 20 percent, fourth 20 percent and richest 20 percent. $\boldsymbol{v}_j$ is level 2 measuring the country effects with H(.) as the normal cumulative distribution function and it maps the linear predictor with the probability of success $(F^R{}_{icj} = 1)$ with H(v)= Φ(u). We used the multilevel probit model largely because our data was collected at the individual level nested with countries. The prior expectation of these variables is displayed in Table 2.

Table 2: Expected signs of variables in the financial resilience models

Variable	Expected sign
Dependent variable: Financial resilience1	
Independent variables	
Digital financial inclusion	+
Gender (1=female; 0=male)	+/-
Age (in years) is the respondent's age	+
Education is the educational attainment of the respondent (0=basic, 1=secondary, 2=tertiary)	+
Employed is the respondent's employment status (1=employed; 0=unemployed)	+

Location is the respondent's place of residence (0=urban; 1=rural)	-
Wealth/income is the wealth or income status of the respondent (0=Poorest 20%; 1=Second 20%; 2=Middle 20%; 3=Fourth 20%; 4=Richest 20%)	+/-
EAP: East Asia and the Pacific; **ECA**: Europe and Central Asia; **LAC:** Latin America and the Caribbean; **MENA:** Middle East and North Africa; **SA**: South Asia; **SSA**: Sub-Saharan Africa	

Source: Author's construct (2024).

CHAPTER FOUR

INCIDENCE OF GLOBAL FINANCIAL INCLUSION

Introduction

This chapter presents and discusses the empirical findings concerning the incidence of financial inclusion worldwide. In this study the incidence of financial inclusion means the rate of financial inclusion which is critical to understanding the proportion of individuals with access to and use of financial service. The goal of this chapter is to answer the first objective of the study which seeks to test the hypothesis of whether there are significant regional differences in the incidence of financial inclusion worldwide, paying attention to the conceptualization of financial inclusion. Further, the chapter also addresses the pertinent question of the relative importance of the major reasons accounting for the rising unbanked globally. The chapter is organized into two main parts. The first part presents and discusses results from the FGT methodology on the incidence of financial inclusion. The second part of this chapter is devoted to the presentation and discussion of results from the dominance analysis regarding the relative importance of the major reasons accounting for the unbanked.

Descriptive statistics

Tables 2 and 3 display summary statistics of all the variables used in the analysis of the three objectives of this study. While Table 4 presents variables measured as continuous, Table 4 captures the dichotomous variables. Starting with our first financial inclusion index (FII additive) constructed using the additive approach, we can see in Table 4, that the index ranges between 0 and 23 across all the regions. This is a first indication that across all the six regions,

some individuals are financially excluded. Further, we can observe from Table 4 that on average, financial inclusion is high in EAP and ECA regions using the additive approach (FII additive) or the MCA approach (FII MCA). For example, using the additive approach we can observe that the average number of financial services and products consumed in the EAP and ECA regions is nine in each of these two regions. This is in contrast with the rest of the regions where for example, the average number of financial services and products consumed by the individuals are approximately Six, four, three and four in the LAC, MENA, SA and SSA regions respectively. Similarly, using the Multiple Correspondence Analysis as an alternative estimation method for financial inclusion, we can see that still the EAP and the ECA regions have a high level of financial inclusion relative to the rest of the regions. These patterns hold firmly and are consistent with the digital financial inclusion indexes.

Table 3: Summary statistics of the continuous variables used in the study.

Variable	Observations	Mean	Std. dev.	Min	Max
East Asia and the Pacific (EAP)					
FII (additive)	19,603	8.649696	5.676873	0	23
FII (MCA)	19,603	.1583605	.5346545	-4.571237	.2186104
DFI (additive)	19,603	7.847574	5.137784	0	17
DFI(MCA)	19,603	.1841204	.9292194	-2.628699	1.127095
Age	19,603	42.05632	17.35643	15	99
Population	19,603	2.43e+08	4.27e+08	2258975	1.15e+09
Europe and Central Asia (ECA)					
FII (additive)	45,608	8.624605	4.877228	0	23
FII (MCA)	45,608	0.159109	0.532185	-4.57124	0.21861
DFI (additive)	45,608	8.289511	4.669002	0	17
DFI(MCA)	45,608	0.213759	0.860218	-2.6287	1.127095
Age	45,608	47.60563	17.37074	15	99
Population	45,608	1.89E+07	2.80E+07	295249.6	1.18E+08
Latin America and the Caribbean (LAC)					

FII (additive)	18,519	4.932934	5.694374	0	23
FII (MCA)	18,519	0.097	1.189477	-4.57124	0.21861
DFI (additive)	18,519	4.366596	5.02912	0	17
DFI(MCA)	18,519	-0.35962	1.076848	-2.6287	1.127095
Age	18,498	41.26743	17.30693	15	99
Population	18,519	2.55E+07	4.04E+07	2269489	1.69E+08
Middle East and North Africa (MENA)					
FII (additive)	14,072	4.347712	4.871365	0	22
FII (MCA)	14,072	0.00089	1.021199	-4.57124	0.21861
DFI (additive)	14,072	4.072982	4.582537	0	17
DFI(MCA)	14,072	0.03281	1.008514	-2.6287	1.127095
Age	14,072	37.63014	15.43165	15	98
Population	14,072	2.12E+07	2.04E+07	449781	6.76E+07
South Asia (SA)					
FII (additive)	8,009	2.882632	4.010408	0	23
FII (MCA)	8,009	0.00089	1.009254	-4.57124	0.21861
DFI (additive)	8,009	2.539768	3.428366	0	17
DFI(MCA)	8,009	0.020357	1.050445	-2.6287	1.127095
Age	8,009	35.65684	14.39159	15	93
Population	8,009	4.22E+08	4.64E+08	1.67E+07	1.02E+09
Sub-Saharan Africa (SSA)					
FII (additive)	36,062	3.587544	4.76532	0	23
FII (MCA)	36,062	0.06384	1.129709	-4.57124	0.21861
DFI (additive)	36,062	2.313904	3.728117	0	17
DFI(MCA)	36,062	-0.59447	1.038528	-2.6287	1.127095
Age	36,062	33.97785	14.76549	15	99
Population	36,062	1.62E+07	2.26E+07	530280.3	1.16E+08

Source: Author's construct (2024).

MCA is multiple correspondence analysis, FII is financial inclusion index, DFI is digital financial inclusion, FII (additive) is financial inclusion index generated using the additive approach, FII (MCA) is financial inclusion index generated using the MCA approach, DFI (additive) is digital financial inclusion index generated using the additive approach, DFI (MCA) is digital financial inclusion index generated using the MCA approach.

Table 4 displays summary statistics of all the dichotomous variables used in the analysis of the three objectives of this study. Panel A of Table 4 presents descriptive statistics for the financial inclusion (FI) and digital financial inclusion (DFI) variables measured as dichotomous. As shown in Panel A of this table, on average, 77.2% of the individuals are financially included. What this means is that approximately 77.2% of the world's population has access to and uses both formal and informal financial services. By region, on average, 83.8 percent, 84.7 percent, 75.4 percent, 56.2 percent, 50.4 percent, and 59.7 percent of the individuals in the EAP, ECA, LAC, MENA, SA and SSA regions respectively are financially included. By implication, the SA has the lowest level of financial inclusion, followed by the MENA region as the SSA region matches up closely in the third spot.

In terms of digital financial inclusion (DFI), Table 4 indicates that the adoption rate is lowest in the SSA region where only 36.4 percent of the individuals are digitally financially included. Next after the SSA is the SA region where only 38.0 percent of the population have access to and use digital financial services. The third worst-performing region on the DFI continuum is the MENA region where about 43.3 percent are digitally financially included. On the contrary, regions like the EAP and the ECA have high levels of digital financial inclusion. In fact, in these two regions, there is nearly no difference between individuals who adopt financial services and those who adopt digital financial services. The implication is that these economies have a high level of digitalisation in their financial architecture. in other words, these are digitised economies.

Table 4: Summary statistics of the dichotomous variables used in the study.

	(1) Global		(2)	(3) EAP		(4)	(5) ECA		(6)	(7) LAC		(8)	(9) MENA		(10)	(11) SA		(12)	(13) SSA		(14)
	Mean	SD		Mean	SD		Mean	SD		Mean	SD		Mean	SD		Mean	SD		Mean	SD	
Panel A: Financial inclusion (FI) and digital financial inclusion (DFI) variables																					
FI	0.778	0.446		0.838	0.366		0.847	0.321		0.754	0.479		0.562	0.489		0.504	0.489		0.597	0.495	
DFI	0.710	0.453		0.835	0.371		0.841	0.327		0.615	0.487		0.433	0.489		0.380	0.496		0.364	0.497	
Panel B: financial resilience variables																					
Financial resilience (30 days benchmark)	0.374	0.484		0.511	0.500		0.536	0.499		0.231	0.422		0.358	0.479		0.114	0.318		0.192	0.394	
Financial resilience (7 days benchmark)	0.301	0.459		0.426	0.495		0.474	0.499		0.155	0.362		0.245	0.430		0.074	0.262		0.122	0.328	
Panel C: control variables																					
Female	0.532	0.499		0.525	0.499		0.536	0.499		0.577	0.494		0.479	0.500		0.500	0.500		0.539	0.498	
Rural	0.221	0.415		0.146	0.353		0.071	0.257		0.201	0.401		0.061	0.240		0.467	0.499		0.481	0.500	
Age	41.057	17.35		42.06	17.36		47.61	17.37		41.27	17.31		37.630	15.43		35.66	14.39		33.98	14.77	
Primary education	0.268	0.443		0.234	0.424		0.104	0.306		0.292	0.455		0.242	0.429		0.503	0.500		0.454	0.498	
Secondary education	0.503	0.500		0.476	0.499		0.531	0.499		0.532	0.499		0.498	0.500		0.428	0.495		0.484	0.500	
Tertiary education	0.223	0.417		0.285	0.451		0.361	0.480		0.166	0.372		0.257	0.437		0.068	0.251		0.055	0.228	
Employed	0.644	0.479		0.583	0.493		0.619	0.486		0.741	0.438		0.593	0.491		0.555	0.497		0.700	0.458	
Poorest 20%	0.162	0.369		0.168	0.374		0.153	0.360		0.165	0.371		0.166	0.372		0.171	0.377		0.168	0.374	
Second 20%	0.173	0.378		0.181	0.385		0.172	0.378		0.171	0.377		0.177	0.382		0.173	0.379		0.168	0.374	
Middle 20%	0.191	0.393		0.197	0.398		0.195	0.396		0.185	0.389		0.196	0.397		0.194	0.395		0.185	0.388	

Fourth 20%	0.215	0.411	0.215	0.411	0.219	0.414	0.219	0.414	0.214	0.410	0.212	0.409	0.207	0.405
Richest 20%	0.258	0.438	0.239	0.426	0.261	0.439	0.260	0.438	0.247	0.431	0.250	0.433	0.272	0.445
Pane D: Major factors for unbanked / Financial exclusion														
Unbanked	0.344	0.475	0.184	0.387	0.128	0.334	0.408	0.478	0.496	0.439	0.489	0.450	0.483	0.424
Too far	0.294	0.455	0.364	0.481	0.226	0.418	0.317	0.465	0.159	0.366	0.395	0.478	0.322	0.467
Too expensive	0.393	0.488	0.329	0.470	0.376	0.484	0.569	0.495	0.306	0.461	0.380	0.485	0.369	0.482
Lack document	0.295	0.456	0.324	0.468	0.155	0.362	0.320	0.466	0.164	0.370	0.288	0.453	0.361	0.480
Lack of trust	0.250	0.433	0.160	0.366	0.284	0.451	0.347	0.476	0.244	0.430	0.270	0.444	0.219	0.414
Religious reasons	0.098	0.298	0.089	0.284	0.068	0.251	0.091	0.287	0.137	0.344	0.112	0.316	0.100	0.300
Lack of money	0.712	0.453	0.706	0.456	0.567	0.496	0.606	0.489	0.750	0.433	0.707	0.455	0.785	0.411
A family member has acct	0.207	0.405	0.299	0.458	0.302	0.459	0.267	0.443	0.205	0.404	0.263	0.440	0.133	0.340
No need	0.317	0.465	0.500	0.500	0.472	0.499	0.313	0.464	0.413	0.492	0.377	0.485	0.207	0.405
N	**143887**		**19603**		**45608**		**18519**		**14072**		**8009**		**36062**	

Notes: All variables displayed in this table are dichotomous

Source: Author's construct (2024)

Panel B of Table 4 indicates that financial resilience is low across all the six regions but worse in regions like the SA (11.4%), LAC (23.1%) and the SSA (39.4%). Panel C indicates that about 53.2 percent of the respondents in the sample are females. Those residing in rural areas are 22.1 percent in our sample, but this figure increases to over 46.0 percent in regions like SSA and the SA. The majority (50.3%) of the respondents in our sample have at least a secondary education. Table 4 shows the descriptive statistics for the variables used in the study. Overall, 34.4 percent of the respondents in our sample are unbanked. Disaggregating the unbanked population by region, Table 2 indicates that the ECA and EAP regions have the least share of the unbanked population which is about 12.8 percent and 18.4 percent respectively. On the contrary, regions like SA and MENA host the highest unbanked population with about 48.9 percent and 47.8 percent of their population being unbanked. In Table 4, pay attention to the eight major factors that respondents have elicited as major reasons for being unbanked. Among the set of eight factors, lack of money (71.2%) was the most cited factor by the respondents with religious reasons (9.8%) and family member already has an account (20.7%) as the least cited. This pattern is consistent across all the six regions.

As will be shown later in the current study, despite that religious reasons and family members already having an account were the least cited among the eight factors, the dominance analysis shows that these two factors are by far the most important factors contributing to the unbanked in some settings. Notwithstanding that respondents had already identified these eight factors as major reasons why they are unbanked; a binary probit model was first estimated to validate whether these factors influence their decisions to be unbanked before

proceeding with the main analysis. Here, we confirm that the factors are indeed determinants of being unbanked.

In terms of individual characteristics, Table 4 indicates that the average age of the respondents across the six regions is 42 years in the EAP region, 47 years in the ECA region, 41 years in the LAC region, 37 years in the MENA region, 35 years in the SA region and 34 years in the SSA region. By implication, the SA and SSA regions have the youngest respondents. In terms of education, Table 4 SA has over half of the respondents with primary education, followed by SSA where about 45.4 percent of the respondents in that has primary education. In contrast, in the EAP and ECA regions, over half of the respondents in each region have at least a secondary education. In terms of employment, Table 4 indicates that most of the respondents in SSA (70.0%) and ECA (61.9%) are in the active workforce

Table 5 presents key characteristics of the respondents based on gender. The first section presents and discusses key characteristics based on gender. The table indicates that most of the females resides in urban areas (56.73%) compared to males (55.45%). However, in terms of ownership of financial account, majority of the female does not own an account in a financial institution compared to that of males. Moreover, most of the females are less educated and unemployed. This challenges women empowerment to participate in financial markets.

Table 5: Key characteristics of respondents based on gender at the global level

	Male	Female
Location		
urban	55.45	56.73
rural	44.55	43.27
Ownership of financial accounts		
No financial account	26.66	34.25
Financial account	73.34	65.75
Education		
Primary	21.88	27.5
Secondary	52.46	49.31
Tertiary	25.66	23.19
Employment		
unemployed	24.14	42.37
employed	75.86	57.63
Income quintiles		
Poorest 20%	14.34	17.66
Second 20%	15.8	18.55
Middle 20%	18.32	19.97
Fourth 20%	21.99	21.31
Richest 20%	29.55	22.5

Source: Author's computation based on Global Findex (2021).

Financial inclusion at the global level

Table 6 presents result on the incidence of financial inclusion across the six regions of the world where I highlight five main findings. First, Table 6, shows that globally, the rate of financial inclusion is approximately 79.0 percent. What this means is that worldwide, 79.0 percent of the world's population participates in both formal and informal financial markets. By implication, these individuals have access to and use both formal and informal

financial services. This finding gives credence to the emerging proposition in the financial inclusion literature that the conceptualisations in financial inclusion matter and should take into account formal and informal financial services (Bukari et al., 2023; Klapper & Singer, 2015; Zins & Weill, 2016). Contrary to Demirgüç-Kunt et al., (2022), using only formal financial services precisely bank accounts the authors concluded that global financial inclusion is 76.0 percent.

Secondly, Table 6 also indicates that out of the six regions of the world, only two regions (i.e., ECA and EAP) have an incidence of financial inclusion above the global average of 79.0 percent. Specifically, Europe and Central Asia (ECA) have the highest incidence of financial inclusion (89.1%), followed by the EAP region with the rate of inclusion at 84.8 percent. This finding implies that most of the regions (four out of six represent 66.7%) performed below the global average in terms of incidence of financial inclusion. This calls for concern given the enormous benefits that come with people having access to and use of financial services ((Bukari et al., 2021; Imai et al., 2010; Koomson et al., 2020).

The third highlight from Table 6 relates to regions with the lowest incidence of financial inclusion globally. Here, Table 6 evidenced that SA is the world's region with the lowest incidence of financial inclusion standing at 60.6 percent, followed by the MENA with a rate of 62.9 percent and the SSA region is ranked third (63.4%). The abysmal performance of these three regions highlights the complexities that individuals in these regions face regarding access to and use of financial services. The finding that in descending order the SA, MENA and SSA are the worst performing regions on the incidence of

financial inclusion continuum supports the findings of (Al-Smadi, 2023; Demirgüç-Kunt et al., 2022; Emara & El-Said, 2021; Mani, 2016)who emphasised that majority of the people in the SA, MENA and SSA regions lack access to basic financial services. Mani (2016) for example, found that the usage of banking services like debt and credit cards, deposits of savings and taking bank loans is lowest in South Asia compared to the rest of the world and that E-banking is also incredibly underutilized, although mobile banking is becoming more popular in the region. Others Emara and El-Said, 2021; and Al-Smadi, (2023) have highlighted similar concerns in the MENA region.

In terms of gender dimensions, Table 6 shows that ECA has the lowest gender gap of 4.7 percentage points, and it is statistically significant at a one percent alpha level. What this means is that the differences in the incidence of financial inclusion between men and women matter and require policy attention. However, the SA has the highest gender gap in terms of incidence of inclusion with a differential effect of approximately 12.0 percent in favour of males and this differential effect is statistically significant at a one percent alpha level, hence indicating the relevance of such variations.

Finally, in terms of locational heterogeneities in the incidence of financial inclusion, Table 6 indicates that significant variations exist across regions with those in rural areas largely disadvantaged. Precisely, the ECA region has the lowest location gap in the incidence of financial inclusion worldwide with a gap of 3.1 percentage points against females. Given that this differential effect is not statistically significant at five, we can infer that at a five percent alpha level, there is no inequality in the incidence of financial inclusion by location in the region. In sharp contrast to regions like SA and SSA, the

location gap in the incidence of financial inclusion is wide with differential magnitudes of 10.1 percentage points and 9.2 percentage points respectively in favour of those in urban areas. Given that these effects are statistically significant at one percent alpha levels, what it means is that the greater inequalities in the incidence of financial inclusion by locations in these two regions should be taken seriously.

Table 6: Incidence of financial inclusion across regions of the world

Region	**Incidence (%)**						
		Gender			Location		
	Full	Male	Female	Gap	Urban	Rural	Gap
ECA	89.13	91.64	86.95	4.69***	91.36	88.26	3.1*
EAP	84.78	87.26	82.52	4.74***	90.68	86.38	4.3**
Population	78.98	79.79	72.18	7.61***	82.1	71.31	10.79***
LAC	66.49	72.1	63.33	8.77**	71.59	65.81	5.78**
SSA	63.37	65.11	55.64	9.47***	64.64	55.49	9.15***
MENA	62.94	68.4	56.97	11.43**	64.08	55.32	8.76***
SA	60.5	67.94	55.88	12.06***	73.29	63.19	10.1***

ECA: Europe and Central Asia, EAP: East Asia and the Pacific, LAC: Latin America and the Caribbean, MENA: Middle East and North Africa, SA: South Asia, SSA: Sub-Saharan Africa

***P-value<0.01, **P-value<0.05, * P-value<0.1

Source: Authors' computation using Global Findex Database (2021)

Incidence of financial inclusion in the Europe and Central Asia (ECA)

Table 7 in the previous section focused on the incidence of financial inclusion at the global level. Table 7 takes a closer examination of the incidence of financial inclusion in the ECA region as it presents results on the incidence of financial inclusion across the various countries in the region. From Table 7, four main findings are highlighted. Firstly, Table 7 indicates that out of the 44 countries examined in the ECA region, two-thirds (29 of 44 representing 66.0%) of them have an incidence of financial inclusion above the regional average of 89.1 percent. In terms of global comparison, out of the 44 countries, only 10 economies (Albania, Armenia, Georgia, Kosovo, Moldova, Romania, Tajikistan, Türkiye, Kyrgyz Republic, and Uzbekistan) had performed below the global average of 79.0 percent. The implication is that the ECA region has made significant strides in expanding access to and use of financial services to its populace compared to regions like the SA, MENA and SSA.

A second major highlight from Table 7 is that as far as the ECA region is concerned, Denmark, Germany, Iceland, Norway, and Sweden are the best-performing countries on the incidence of financial inclusion with each of these economies having incidence scores above 98.0 percent. On the contrary, Tajikistan is ECA's worst-performing country concerning financial inclusion where the incidence of financial inclusion is lowest (40.2%), followed by Kyrgyz Republic (46.7%) and Uzbekistan (47.0%). Similarly, by Le et al., (2019) had observed that uptake of financial services and by extension financial inclusion is not uniform across all economies in the ECA region.

Table 7: Incidence of financial inclusion across countries in the ECA region

Country	Incidence (%)						
		Gender			Location		
	Full	Male	Female	Gap	Urban	Rural	Gap
Denmark	98.99	98.99	98.98	0.01	98.98	98.89	0.09
Iceland	98.99	98.99	98.96	0.03	98.89	98.84	0.05
Norway	98.99	98.99	98.95	0.04	98.87	98.46	0.41
Germany	98.98	98.98	98.93	0.05	98.98	98.61	0.37
Sweden	98.97	98.97	98.91	0.06	98.97	98.4	0.57
Austria	97.95	99.9	99.58	0.32	98.95	98.38	0.57
United Kingdom	97.76	98.61	98.02	0.59	98.76	98.37	0.39
Netherlands	97.73	97.98	97.47	0.51	97.73	97.68	0.05
Ireland	97.66	97.87	97.53	0.34	97.66	97.54	0.12
Switzerland	96.98	97.85	97.79	0.06	97.58	97.51	0.07
Finland	96.88	97.84	97.78	0.06	97.53	97.48	0.05
Estonia	96.86	97.79	97.76	0.03	96.46	96.39	0.07
France	96.84	97.76	97.64	0.12	96.44	96.04	0.40
Slovenia	96.82	97.69	97.55	0.14	96.05	95.76	0.29
Belgium	96.81	97.67	97.65	0.02	96.01	95.43	0.58
Spain	96.67	97.55	97.49	0.06	96.67	95.22	1.45
Italy	96.56	96.86	96.09	0.77	96.16	95.02	1.14
Latvia	95.81	96.74	96.07	0.67	95.91	94.76	1.15
Poland	95.45	96.64	96.17	0.47	95.85	94.54	1.31
Slovak Republic	95.41	96.56	94.64	1.92	95.88	94.02	1.86
Czechia	95.36	96.53	93.73	2.8	95.76	92.01	3.75
Cyprus	95.34	95.47	94.59	0.88	95.64	91.23	4.41
Greece	94.88	95.33	93.43	1.90	94.88	91.01	3.87
Portugal	93.76	95.92	90.9	5.02	93.76	90.96	2.80
Lithuania	93.7	95.34	90.38	4.96*	93.7	90.72	2.98
Croatia	93.68	95.85	91.8	4.05*	93.68	86.87	6.81*
Serbia	91.34	93.76	91.91	2.15*	91.34	84.88	6.46*
Russian Federation	91.21	92.96	91.42	1.54*	91.21	84.01	7.2*
Hungary	88.96	89.73	88.27	1.46**	88.96	83.04	5.92***
Population	89.13	91.64	86.95	4.69***	91.36	88.26	3.10***
North Macedonia	86.47	90.62	82.27	8.35***	86.47	82.87	3.6**
Bulgaria	86.44	86.36	83.52	2.84***	86.44	81.86	4.58***
Kazakhstan	84.76	84.15	82.09	2.06***	87.03	80.68	6.35***
Ukraine	84.27	88.11	81.13	6.98***	84.27	79.98	4.29**
Bosnia and Herzegovin	80.86	90.32	71.81	18.51***	80.86	78.99	1.87***
Türkiye	74.98	86.03	83.64	2.39***	74.98	68.84	6.14***
Romania	72.26	77.19	67.59	9.6***	72.26	68.08	4.18***
Georgia	71.11	71.41	70.77	0.64***	75.57	68.01	7.56***
Kosovo	70.37	78.19	62.73	15.46**	67.54	65.01	2.53***
Moldova	66.27	67.15	65.47	1.68***	73.35	59.1	14.25***
Armenia	56.96	61.73	53.21	8.52***	61.28	44.33	16.95***
Albania	50.48	52.53	48.32	4.21***	55.73	40.86	14.87***
Uzbekistan	46.95	53.16	41.53	11.63**	47.57	46.80	0.77***
Kyrgyz Republic	46.73	48.6	45.01	3.59***	47.39	45.85	1.54***
Tajikistan	40.23	40.71	39.77	0.94***	41.18	36.49	4.69***
N	44						

Source: Authors' computation using Global Findex Database (2021)

***P-value<0.01, **P-value<0.05, *P-value<0.1

The third highlight relates to the gender dimensions where Table 7 shows that most of the countries in the ECA region have nearly levelled the gender inequalities in the incidence of financial inclusion. Specifically, even at a ten percent level of significance, over half (i.e., 55.0%) of the countries in the ECA region exhibit no differences in the incidence of financial inclusion across gender. Remarkably, this proportion increases to 60.0 percent when the level of significance is even lowered to a five percent alpha level. However, some countries within the ECA region still have unacceptably high levels of gender gaps in the incidence of financial inclusion. Key among these countries includes Bosnia and Herzegovin (18.5%), Kosovo (15.5%), and Uzbekistan (11.63) all in favour of males. The implication is that although the ECA region is doing well in accelerating access to and use of both formal and informal financial services to its population, significant variations exist within countries where some countries are doing poorly and hence require more efforts in that regard.

The final highlight from Table 7 relates to the location dimensions where we can see that significant variations exist among countries in the ECA region regarding the incidence of financial inclusion, although most of the countries as performing well. Precisely, over half (i.e., 56.8%) of the countries in the ECA region exhibit no differences in the incidence of financial inclusion across locations. This notwithstanding, a significant number of the countries in the region are not doing well. For example, countries with the highest location gaps in the incidence of financial inclusion are Armenia (17.0%), Moldova (14.3%) and Albania (14.9%) all against those in the rural areas. These differential effects are statistically significant at a one percent alpha level and by implication show the importance of such variations.

Incidence of financial inclusion in the East Asia and the Pacific (EAP) region

Table 8 presents results on the incidence of financial inclusion across various countries in the EAP region where I highlight four main findings. Firstly, Table 8 indicates that most of the economies in the EAP region are performing well in terms of incidence of financial inclusion with New Zealand (99.0%), Australia (99.0%) and Japan (99.0%) as the top-performing countries. In more specific terms, 11 out of the 17 countries examined have an incidence of financial inclusion above the EAP regional average of 84.8 percent. These 11 economies also have their incidence above the global average of 76.0 percent. What this means is that only 35.3 percent of the economies in the EAP region are not performing well on the incidence of financial inclusion and all those countries also performed below the global average of 76.0 percent with Cambodia being the lowest performing country where their incidence of financial inclusion is 34.5 percent.

In terms of gender dimensions, Table 8 shows most of the countries in the EAP region have nearly closed the gender gap in the incidence of financial inclusion. Specifically, even at a ten percent level of significance, over half (i.e., 64.7%) of the countries in the EAP region show no differences in the incidence of financial inclusion across gender. Strikingly, in countries like New Zealand and Australia, the gap in the incidence of financial inclusion favours females. By implication, females have more access to and use financial services than males. This notwithstanding, it is important to emphasise that not all countries within the EAP are out of the hook in terms of financial inclusion. Gender gaps

in the incidence of financial inclusion remain visible and significantly high in countries like the Philippines (8.5%), Vietnam (7.0%) and Lao PDR (5.0%).

Table 8: Incidence of financial inclusion across countries in the EAP region

Country	Incidence (%)						
		Gender			Location		
	full	Males	female	Gap	Urban	Rural	Gap
New Zealand	98.99	98.82	99.80	-0.98	98.98	98.06	0.92
Australia	98.92	98.59	98.81	-0.22	98.32	97.86	0.46
Japan	98.91	98.62	97.19	1.43	98.91	95.98	0.93
Korea, Rep	98.67	98.66	97.68	0.98	98.67	98.02	0.65
HongKong	98.49	98.33	96.63	1.700	98.49	89.8	8.69
Mongolia	98.46	97.89	95.97	1.92**	98.64	98.16	0.48
Singapore	97.62	98.27	98.00	0.27	97.62	97.23	0.39
Taiwan	97.56	98.20	97.79	0.41	98.30	98.00	0.30
Thailand	96.31	98.97	97.8	1.17	96.31	96.01	0.3
China	94.3	94.68	90.88	3.80	94.3	87.1	7.2
Malaysia	88.97	89.95	87.99	1.96	89.21	88.18	1.03
Population	84.78	87.26	82.52	4.74**	90.68	86.38	4.3**
Philippines	53	57.39	48.89	8.5**	53	48.2	4.8**
Vietnam	53.8	57.78	50.62	7.16**	55.88	42.0	13.88**
Indonesia	52.77	55.12	53.4	1.72**	55.96	46.13	9.83***
Myanmar	49.01	50.68	47.43	3.25***	49.01	25.48	23.53**
Lao PDR	40.77	46.22	41.29	4.93***	69.22	34.24	34.98***
Cambodia	34.1	35.2	33.15	2.05**	53.72	28.26	25.46***
N	17						

Source: Authors' computation using Global Findex Database (2021)

***P-value<0.01, **P-value<0.05, *P-value<0.1

Finally, in terms of location, Table 8 indicates that significant variations exist among countries in the EAP region regarding the incidence of financial inclusion, although most of the countries performed above the global average of 76.0% and the regional average of 84.8%. Precisely, over half (i.e., 64.7%) of the countries in the EAP region exhibit no differences in the incidence of

financial inclusion across locations. This notwithstanding, some of the countries in the region are not doing well. For example, countries with the highest location gaps in the incidence of financial inclusion are Lao PDR (35.0%), Cambodia (25.5%), Myanmar (23.5%) and Vietnam (13.9%) all against those in the rural areas. These differential effects are statistically significant at a one percent alpha level and by implication show the importance of such variations.

Incidence of financial inclusion in the Latin America and the Caribbean (LAC) region

Table 9 presents result on the incidence of financial inclusion across various countries in the LAC region where we highlight four main findings. Firstly, Table 9 indicates that 8 out of the 19 countries examined in the LAC region have an incidence of financial inclusion above the regional average of 66.5 percent. By implication, about majority (58.0%) of the countries in this region performed below the regional average. In terms of global comparison, only three countries (Chile − 89.1%, Brazil−84.8% and Uruguay−77.8%) performed above the global average of 76.0 percent. What this means is that over 84.0 percent of the countries in this region performed below the global average. The implication is that most of the people in these countries still lack access to and use of financial services.

Secondly, Table 9 shows that as far as the LAC region is concerned, Chile, Brazil and Uruguay are the best-performing countries on the incidence of financial inclusion incidence scores 89.1 percent, 84.8 percent and 77.8 percent respectively. On the contrary, Nicaragua, Guatemala and El Salvador are the worst-performing regions with financial inclusion rates of 28.6%, 38.5% and

38.9%, respectively. By implication, over half of the population in these worst-performing regions are excluded from the financial market.

In terms of gender dimensions, Table 9 shows most of the countries in the LAC region have significant gender gaps in the incidence of financial inclusion. Specifically, in 17 out of 19 of the countries representing over 89.0 percent, significant gender gaps exist in the incidence of financial inclusion where all odds are against females. In countries like Honduras, El Salvador and Mexico, the gender gaps in the incidence of financial inclusion are significantly higher at 20.1 percentage points, 16.3 percentage points, and 14.1 percentage points respectively, all of which are in favour of males. However, in other countries like Chile, Uruguay, and Argentina the gender gap in the incidence of financial inclusion is below 3.0 percentage points and statistically zero. What this means is that in such economies, there is almost equal access to and use of financial services between males and females.

Finally, in terms of location, Table 9 indicates that significant variations exist among countries in the LAC region regarding the incidence of financial inclusion with most of them not performing well when compared to both regional and global averages. Precisely, except, in Costa Rica and Bolivia, the gender gap persists in all the countries in the LAC region with countries such as Guatemala (14.2%), Paraguay (14.1), Panama (13.9%), Nicaragua (13.5%) and Dominican Republic (11.9) all having gender gaps above 10 percentage points in favour of those in urban areas. These differential effects are statistically significant at a one percent alpha level and by implication show the importance of such variations.

Table 9: Incidence of financial inclusion across the LAC region

Country	Incidence (%)						
		Gender			Location		
	Full	Male	Female	Gap	Urban	Rural	Gap
Chile	89.09	89.39	88.82	0.57	87.20	80.82	6.38***
Brazil	84.76	88.46	80.87	7.59*	84.76	79	5.76**
Uruguay	77.79	76.36	79.07	-2.71	78.99	70.02	8.97***
Jamaica	74.06	75.11	73.05	2.06*	80.53	75.43	5.07***
Argentina	72.86	71.57	74.2	-2.63	72.86	69.05	3.81***
Costa Rica	70.58	78.11	63.46	14.65***	70.58	69.87	0.71
Bolivia	70.2	74.95	65.04	9.91**	70.2	69.99	0.21
Ecuador	66.51	74.02	59.2	14.82**	66.51	60.22	6.29***
Population	66.49	72.1	63.33	8.77**	71.59	65.81	5.78**
Colombia	61.13	64.57	57.95	6.62***	61.13	59.81	1.32**
Peru	59.34	63.62	55.38	8.24**	61.6	53.25	8.35**
Paraguay	55.08	54.19	55.98	-1.79***	60.97	46.87	14.1***
Dominican Republic	52.99	54.43	51.59	2.84**	56.06	44.12	11.94**
Venezuela, RB	50.93	49.95	42.47	7.48***	86.23	80.44	5.79*
Panama	50.86	54.2	47.72	6.48***	55.24	41.3	13.94***
Mexico	43.3	51.94	37.85	14.09**	39.06	28.67	10.39**
Honduras	40.62	51.51	31.46	20.05***	42.45	38.6	3.85**
El Salvador	38.93	48.29	32.01	16.28**	42.48	33.48	9.00**
Guatemala	38.50	42.75	35.58	7.17**	49.57	35.33	14.24***
Nicaragua	28.58	33.22	24.35	8.87**	36.07	22.57	13.50**
N	19						

Source: Authors' computation using Global Findex Database (2021)

***P-value<0.01, **P-value<0.05, *P-value<0.1

Incidence of financial inclusion in the MENA region

Table 10 offers results on the incidence of financial inclusion across countries in the MENA region where we highlight four main findings. Firstly, Table 10 indicates that only 5 out of the 14 countries (representing 35.7%) examined in the MENA region have an incidence of financial inclusion above the regional average of 62.9 percent. In terms of global comparison, nine out of the 14 countries (representing 64.3% of the total) performed below the global

average of 76.0 percent. The implication is that most of the countries in the MENA region are not progressing well in terms of provisions of financial services to their population. This supports the findings of Özşuca, (2019) who found that most individuals in the MENA lack access to basic financial services.

Secondly, Table 10 shows that as far as the MENA region is concerned, Israel, Iran, Islamic Rep, Malta, Saudi Arabia, and the United Arab Emirates are the best-performing countries on the incidence of financial inclusion with each of these economies having incidence scores above 86.0 percent. On the contrary, Yemen is MENA's worst-performing country in terms of financial inclusion with an incidence standing at 19.9 percent, followed by Lebanon (21.4%) and Egypt (27.8%).

In terms of gender dimensions, Table 10 shows that most of the countries in the MENA region are battling with large gender gaps in the incidence of financial inclusion. Specifically, except Malta, Saudi Arabia and the United Arab Emirates, virtually all the economies are facing significant gender gaps in the incidence of financial inclusion where females are adversely affected. At a five percent level of significance, over 78.6 percent of the countries in the MENA region exhibit significant differences in the incidence of financial inclusion across gender in countries such as Yemen (23.8%), West Bank and Gaza (17.6%), Tunisia (16.3%), Jordan 14.6%) and Morocco (12.4%) all having gender gaps over 12 percentage points. The implication is that a significant proportion of females in these economies lack access to and use of financial services. What might be the reasons? Here, you may have to bring in issues of culture, distance/geographic, and others. This is where discussion is needed.

Table 10: Incidence of financial inclusion across the MENA region

Country	Incidence (%)						
		Gender			Location		
	Full	Male	Female	Gap	Urban	Rural	Gap
Malta	96.84	97.87	95.8	2.07	96.84	95.32	1.52
Israel	93.51	94.56	90.51	4.05**	93.6	90.74	2.86**
Iran, Islamic Rep.	90.7	95.09	86.27	8.82**	90.7	87.41	3.29**
Saudi Arabia	89.06	93.18	91.00	2.18	89.06	87.19	2.87
United Arab Emirates	86.85	86.59	87.58	-0.99	86.85	85.03	1.82
Population	62.94	68.4	56.97	11.43**	64.08	55.32	8.76***
Algeria	49.37	58.15	50.48	7.67**	49.37	48.09	1.28***
Jordan	48.71	60.21	45.62	14.59***	48.71	45.01	3.7**
Morocco	45.67	56.83	44.43	12.4***	45.67	41	4.67**
Tunisia	39.37	47.59	31.32	16.27**	41.55	33.4	8.15
West Bank and Gaza	37.4	44.23	26.64	17.59***	37.18	25.78	12.60**
Iraq	28.64	33.04	24.2	8.84**	29.01	28.65	0.36**
Egypt	27.81	30.93	24.58	6.35**	28.28	24.07	4.21***
Lebanon	21.4	25.52	17.11	8.41***	21.4	10.82	10.58***
Yemen	19.90	31.80	8.00	23.8***	21.12	11.80	9.32**
N	14						

Source: Authors' computation using Global Findex Database (2021)

***P-value<0.01, **P-value<0.05,*P-value<0.1

Finally, in terms of location, Table 10 indicates that significant gender gaps exist in virtually all the countries in the MENA region regarding the incidence of financial inclusion. This notwithstanding, some countries are doing better than others in narrowing the gender gaps. For example, at a five percent level of significance, there is no location gap in the incidence of financial inclusion in Malta, Saudi Arabia, and the United Arab Emirates. On the contrary, countries with the highest location gaps in the incidence of financial inclusion are Yemen, Lebanon, West Bank and Gaza.

Incidence of financial inclusion in the South Asia (SA) region

Table 11 offers results on the incidence of financial inclusion across countries in the SA region where we highlight four main findings. Firstly, Table 11 indicates that one-third (two out of the six representing 35.7%) of the countries examined in the SA region have an incidence of financial inclusion above the regional average of 60.5 percent. In terms of global comparison, only two countries performed above the global average of 76.0% with the remaining 66.7 percent performing below this average score. The implication is that most of the countries in the SA region are not progressing well in terms of provisions of financial services to their population.

Secondly, Table 11 shows that as far as the SA region is concerned, Sri Lanka and India are the best-performing countries on the incidence of financial inclusion with each of these economies having incidence scores above 78.0 percent. On the contrary, Afghanistan is SA's worst-performing country in terms of financial inclusion with an incidence standing at 9.8 percent, followed by Pakistan (21.3%) and Bangladesh (54.3%).

In terms of gender dimensions, Table 11 shows that most of the countries in the SA region are battling with large gender gaps in the incidence of financial inclusion. Specifically, except for Sri Lanka and India, virtually all the economies are facing significant gender gaps in the incidence of financial inclusion where females are adversely affected. At a five percent level of significance, over 66.7 percent of the countries in the SA region exhibit significant differences in the incidence of financial inclusion across gender with countries such as Pakistan (14.3%), Afghanistan (10.4%) and Bangladesh (9.4%) all having gender gaps over 10 percentage points. The implication is that

a significant proportion of females in these economies lack access to and use of financial services.

Table 11: Incidence of financial inclusion across countries in SA

Country	Incidence (%)						
		Gender			Location		
	Full	Male	Female	Gap	Urban	Rural	Gap
Sri Lanka	89.41	89.38	89.43	0.05	89.43	87.71	1.72***
India	78.03	78.06	78	0.06	78	77.58	0.42
Population	60.5	67.94	55.88	12.06***	73.29	63.19	10.1***
Nepal	55.55	59.75	51.8	7.95***	53.49	51.80	1.69
Bangladesh	54.33	64.4	54.96	9.44***	50.25	44.96	5.29**
Pakistan	21.26	28.28	13.94	14.34***	15.7	12.94	2.76***
Afghanistan	9.81	15.1	4.7	10.40***	7.26	4.70	2.56***
N	6						

Source: Authors' computation using Global Findex Database (2021)

***P-value<0.01, **P-value<0.05,*P-value<0.1

Finally, in terms of location, Table 11 indicates that except for India, significant gaps exist in virtually all the countries in the SA region regarding the incidence of financial inclusion. This notwithstanding, some countries are doing better than others in narrowing the gender gaps. For example, at a five percent level of significance, there is no location gap in the incidence of financial inclusion in India and Nepal. On the contrary, countries with the highest location gaps in the incidence of financial inclusion are Bangladesh (5.3%), Pakistan (2.8%) and Afghanistan (2.6%).

Incidence of financial inclusion in the sub-Saharan Africa (SSA) region

Table 12 offers results on the incidence of financial inclusion across countries in the SSA region where we highlight four main findings. Firstly, Table 12 indicates that less than one-third (11 out of the 36 representing 30.6%)

of the countries examined in the SSA region have their incidence of financial inclusion above the regional average of 63.4 percent. In terms of global comparison, only five countries (Mauritius-93.5%, South Africa-88.8%, Kenya-81.0%, Namibia-78.2% and Ghana-77.1%) performed above the global average of 76.0 percent with the remaining 31countries performing below this average score. The implication is that most (86.2%) of the countries in the SSA region are not progressing well in terms of provisions of financial services to their population.

Secondly, Table 12 shows that as far as the SSA region is concerned, Mauritius, South Africa, Kenya, Namibia, and Ghana are the best-performing countries on the incidence of financial inclusion with each of these economies having incidence scores above 77.0 percent. On the contrary, South Sudan is SSA's worst-performing country in terms of financial inclusion with an incidence standing at 7.5 percent, followed by Niger (14.8%) and Mauritania (28.7%).

In terms of gender dimensions, Table 12 shows that except for Mauritius, South Africa and Eswatini, virtually all countries in the SSA region are battling with large gender gaps in the incidence of financial inclusion where females are adversely affected. Specifically, at a five percent level of significance, over 91.7 percent of the countries in the SSA region exhibit significant differences in the incidence of financial inclusion across gender with countries about half of them having gender gaps of over 10 percentage points. The implication is that a significant proportion of females in these economies lack access to and use of financial services.

Table 12: Incidence of financial inclusion across countries in the SSA region

Country	Incidence (%)						
		Gender			Location		
	Full	Male	Female	Gap	Urban	Rural	Gap
Mauritius	93.5	95.03	92.06	2.97	93.5	91.74	1.76
South Africa	88.76	86.91	90.1	-3.19**	89.3	86.68	2.62*
Kenya	81	84.89	77.25	7.64**	89.58	62.3	27.28***
Namibia	78.23	82.35	73.52	8.83**	78.24	52.6	25.64***
Ghana	77.10	79.1	70.31	8.79	85.9	57.35	28.55***
Gabon	75.00	80.56	68.6	11.96**	81.7	49.47	32.23***
Eswatini	74.4	73.4	75.04	-1.64	78.88	72	6.88***
Uganda	68.6	69.65	60.66	8.99**	74.8	54.78	20.02***
Lesotho	68.2	71.46	66.25	5.21**	76.02	47.27	28.75***
Botswana	66.9	72.19	62.52	9.67***	73.53	56.25	17.28***
Senegal	64.6	71.51	57.63	13.88**	87.01	70.8	16.21***
Population	63.37	65.11	55.64	9.47***	64.64	55.49	9.15***
Mozambique	62.4	71.03	54.86	16.17***	68	54	14***
Nigeria	61.9	67.67	54.46	13.21**	69.39	27	42.39***
Zimbabwe	60.2	67.5	54.52	12.98***	72.26	54.78	17.48***
Tanzania	57.84	67.02	52.32	14.7***	68.1	64.06	4.04**
Côte d'Ivoire	57.2	69.3	44.19	25.11***	64.57	50.9	13.67***
Togo	56.8	62.03	51.3	10.73**	74.47	42.1	32.37***
Cameroon	56.1	60.35	52.56	7.79**	66.11	44.35	21.76***
Zambia	55.7	60.47	52.8	7.67**	71.1	42.07	29.03***
Liberia	54.6	60	50.44	9.56***	68.82	24.9	43.92***
Ethiopia	53.7	64.13	44.815	19.315***	57.78	42.31	15.47***
Benin	52.8	62.34	44.06	18.28***	58.75	47.34	11.41***
Congo, Re	51.6	56.38	46.94	9.44***	61.36	37.56	23.8***
Malawi	47.6	55.23	42.27	12.96***	57.8	40.77	17.03***
Mali	46.5	50.6	42.3	8.3***	57.142	18.3	38.842***
Burkina F	45.3	53.36	37.97	15.39***	60.95	33.98	26.97***
Comoros	41.2	47.1	37.228	9.872***	47.12	29.7	17.42***
Congo, De	39.6	44.62	33.25	11.37***	45.19	20.9	24.29***
Gambia, T	36.3	42.47	31.35	11.12***	63.051	41.34	21.711***
Guinea	36.3	42.88	28.54	14.34***	76.7	45.33	31.37**
Sierra Le	33.57	41.21	28.25	12.96***	43.84	5.98	37.86***
Madagascar	30.7	33.5	28.62	4.88*	41.9	41.42	0.48
Chad	29.3	32.1	25.98	6.12**	32.89	26.4	6.49**
Mauritania	28.7	38.35	20.76	17.59***	59.4	33.14	26.26***
Niger	14.8	19.64	10.86	8.78***	54.47	15.2	39.27***
South Sudan	7.5	11	5.85	5.15***	45.97	14.36	31.61***
N	36						

Source: Authors' computation using Global Findex Database (2021)

***P-value<0.01, **P-value<0.05, *P-value<0.1

Finally, in terms of location, Table 12 indicates that except for Mauritius, significant gaps exist in virtually all the countries in the SSA region

regarding the incidence of financial inclusion. For example, at a five percent level of significance, there is a significant location gap in the incidence of financial inclusion in all 36 countries except Mauritius. What this means is that more policy efforts are required in the SSA region to improve the rural catch-up in access to and use of financial services.

Relative importance of predictors of unbanked globally

This section addresses the second part of the first objective. Precisely, this section presents results (Tables 13-19) on the relative importance of the major reasons accounting for the unbanked. The global level estimates are presented in Table 13 while Tables 14, 15, 16, 17, 18 and 19 show results for the ECA, EAP, LAC, MENA, SA and SSA regions respectively. A close look at Table 13 indicates that family member already has an account is the most important predictor of being unbanked globally contributing to nearly 43.0 percent of the explained variations in the unbanked. Lack of money is the second contributor to being unbanked worldwide accounting for approximately 17.0 percent of the predicted variance. However, a critical look at the regional-level estimates presented in Tables 13-19 reveals very interesting findings contrary to global estimates. We find that for each of the six regions considered, there is a unique set of factors that are most important in explaining variations in their unbanked. For brevity, we highlight only the two leading factors (i.e., the two most important among the eight factors) for each region.

First, the finding that a family member already has an account is the most important predictor of being unbanked globally only holds for the EAP (see Table 5), LAC (see Table 16) and the SSA (see Table 19) regions where

that predictor contributed to over 62.0 percent, 73.0 percent and 40.0 percent of the predicted variance in their unbanked respectively. It is worth noting that aside from the first leading factor which indicates a similarity among the EAP, LAC and SSA regions, there is divergence in terms of the second most important contributor of being unbanked among the three regions. For instance, compared to the EAP region and the global results, religion (religious reasons) is the second most important contributor to being unbanked in the SSA region contributing to almost 11.0% of the explained variations in their unbanked. However, in the EAP region, lack of need for financial services (22.7%) is the second most important predictor of unbanked. In contrast, lack of documentation holds the second spot in the LAC region accounting for 28.8% of the explained variations in their unbanked.

Meanwhile, the two most important predictors of unbanked in the ECA region (see Table 13) are unique to the other regions except the SA region. Precisely, we find that the cost of financial services (too expensive) is the leading predictor of being unbanked in the ECA region (see Table 4) and in the SA region (see Table 7), respectively accounting for 33.8 percent and 53.6 percent of the explained variations in their unbanked. However, lack of trust in financial institutions is ranked second contributing to 33.4 percent of the explained information compared to the SA region where lack of need for financial services (15.0%) holds the same rank. Not surprisingly, in the MENA region, religion (religious reasons) is the most important predictor of being unbanked, accounting for 53.0 percent of the predicted variance in the unbanked. Distance to financial institutions (15.5%) is the second most important predictor of being unbanked in the MENA region.

Overall, our findings that each region has its distinct dominant factors of unbanked is consistent with existing studies. Regarding the ECA region, Berg et al., (2020) found that lack of innovation and lack of trust in financial institutions remain barriers in the region. As noted by Demirgüç-Kunt et al., (2022), the cost of financial services and trust in financial institutions are still major barriers to financial inclusion in the ECA region. In the LAC region, Pería (2013) found that in addition to the high cost of financial services, the number of documentation required to open deposit accounts in the region far exceeded what is required in other regions of the world. Motta and Gonzalez Farias, (2022) also reported that the cost of financial services, lack of money and documentation are the main barriers to account ownership in the region. For the MENA region, Demirgüç-Kunt et al., (2013) earlier found that Muslims are less likely than non-Muslims to participate in the formal financial markets. However, to the extent that none of these previous studies have precisely examined the relative importance of such predictors, the current study is distinct. To the best of our knowledge, this study is the first to empirically assess the relative contribution of each of the identified predictors to the overall unbanked.

The relative importance of predictors of unbanked along gender and location dimensions

This section highlights the gender and location heterogeneities in the relative importance of predictors of the unbanked across regions of the world.

Gender heterogeneities in the relative importance of predictors of unbanked

Globally, a family member already has an account is the most important predictor of being unbanked among both men and women. Further, while lack of money is ranked second among men, a lack of need for financial services holds the same rank among women. It is important to emphasise that at the regional level (see Tables 14-19), visible heterogeneities exist regarding the relative importance of predictors of the unbanked based on gender. Beginning with the ECA and the SA regions (see Tables 14 and 17) where we find that the cost of financial services (too expensive) is generally the leading predictor of being unbanked in both regions, that finding is also true for women in the SA region but for the unbanked men in SA, it is the distance to financial institutions that matter most. On the contrary, for men and women in the ECA region, family member already has an account and lack of trust in financial institutions are the leading predictors of being unbanked respectively. Still in the ECA and SA regions, while lack of documentation is the second most important predictor of being unbanked among men and women in the SA region, the cost of financial services is ranked second among men and women in the ECA region.

Next is the EAP, LAC and SSA regions (see Tables 15, 16 and 19) where we find that family member already has an account is the leading predictor of being unbanked. This finding holds for both men and women in the EAP and LAC regions but only for women in the SSA region. For men in the SSA region, religion (religious reasons) is the leading predictor of being unbanked. However, across the EAP, LAC and SSA regions, different factors are ranked second in terms of their effects in explaining variations in the unbanked based

on gender. For instance, while lack of money is the second most important predictor of being unbanked among men and women in the EAP region, lack of documentation and religion (religious reasons) hold the same spot among men and women respectively in the LAC region. Meanwhile, for men in the SSA region, a family member already has an account is the second most important predictor of being unbanked among men but for their women, it is a lack of need for financial services.

Location heterogeneities in the relative importance of predictors of unbanked

Overall, we find that family member who already has an account are the greatest contributor to people being unbanked in both rural and urban areas worldwide. While Lack of money matters for rural dwellers, religion (religious reasons) matters for men globally. However, these estimates differ by region. In the ECA and SA region, family member already has an account has the greatest effect in narrowing the share of unbanked in their rural people but for their urban equals, it is the cost of financial services (for the case of ECA region) and distance to financial institutions (for the case of SA) that matter. Moreover, for both regions, a lack of need for financial services is the second leading factor of being unbanked among rural people. Meanwhile, for those in urban areas, trust in financial institutions (in the case of the ECA region) and religion (in the case of the SA region) are key.

For the remaining regions (see Tables 15, 16 and 19), different factors mostly explained the variations in their unbanked in both rural and urban localities. Specifically, family member already has an account, and religion appears strongest among rural and urban dwellers in the SSA region but,

Table 13: General dominance statistics for the Relative importance of predictors of unbanked (Global estimates)

Predictors	Full		Men		Women		Rural		Urban	
	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank
Distance (too far)	0.0125	8	0.0204	8	0.0100	8	0.0073	8	0.0320	7
Cost (too expensive)	0.0884	5	0.0458	6	0.1232	3	0.0157	7	0.1586	3
Lack of documentations	0.0475	7	0.0211	7	0.0719	6	0.0617	5	0.0101	8
Lack of trust	0.0949	4	0.0864	3	0.0942	5	0.0613	6	0.1349	4
Religion (religious reasons)	0.0597	6	0.0575	4	0.0583	7	0.0950	3	0.1886	2
Lack of money (income)	0.1695	2	0.2425	2	0.1173	4	0.1725	2	0.0725	5
A family member has an account	0.4262	1	0.4726	1	0.3868	1	0.5041	1	0.3651	1
lack of need (No need)	0.1013	3	0.0537	5	0.1383	2	0.0823	4	0.0382	6
N	47591		19965		27626		18377		20656	
No of countries	138		138	138	138	138	138	138	138	
Overall Fit Statistic	0.0153		0.0146		0.0165		0.0120		0.0105	

Notes: Unbanked is a dummy with 1 if the individual has no account at a financial institution or has no debit card and 0 otherwise. There is a drop in observations largely because the estimations are restricted to only the unbanked population. We could not estimate the model for North America due to very few observations on the unbanked, Domin. Stat. refers to the standardized version of the general dominance statistics. Overall Fit Statistic show the total variation in the unbanked that can be explained by the present model.

Source: Authors' computation (2024)

Table 14: General dominance statistics for the relative importance of predictors of unbanked in the ECA region

Predictors	Full		Men		Women		Rural		Urban	
	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank
Distance (too far)	0.0292	5	0.1036	4	0.1618	3	0.1467	4	0.0127	7
Cost (too expensive)	0.3384	1	0.2341	2	0.2748	2	0.0250	6	0.3379	1
Lack of documentations	0.0047	7	0.0198	7	0.0040	6	0.1884	3	0.0212	6
Lack of trust	0.3344	2	0.0966	5	0.3930	1	0.0203	7	0.2292	2
Religion (religious reasons)	0.2225	3	0.1654	3	0.1582	4	0.0123	8	0.1554	4
Lack of money (income)	0.0064	6	0.0427	6	0.0041	5	0.1392	5	0.0362	5
A family member has an account	0.0636	4	0.3199	1	0.0002	8	0.2529	1	0.0013	8
lack of need (No need)	0.0008	8	0.0178	8	0.0039	7	0.2152	2	0.2060	3
N	5777		2153		3624		1330		2494	
No of countries	44		44		44		44		44	
Overall Fit Statistic	0.0063		0.0089		0.0080		0.0126		0.0056	

Notes under Table 2 apply here

Overall Fit Statistic show the total variation in the unbanked that can be explained by the present model.

Source: Authors' computation (2024)

Table 15: General dominance statistics for the Relative importance of predictors of unbanked in the EAP region

	Full		Men		Women		Rural		Urban	
Predictors	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank
Distance (too far)	0.0205	6	0.0203	6	0.0187	6	0.0592	6	0.0127	7
Cost (too expensive)	0.0038	8	0.0653	4	0.0072	7	0.1172	3	0.0510	4
Lack of documentations	0.0300	4	0.0150	7	0.0349	5	0.0849	5	0.0058	8
Lack of trust	0.0211	5	0.1272	3	0.0009	8	0.1001	4	0.0151	6
Religion (religious reasons)	0.0056	7	0.0301	5	0.0416	4	0.0335	7	0.0382	5
Lack of money (income)	0.0729	3	0.0033	8	0.1473	3	0.4123	1	0.5415	1
A family member has an account	0.6184	1	0.5169	1	0.5596	1	0.0085	8	0.1284	3
lack of need (No need)	0.2277	2	0.2220	2	0.1898	2	0.1843	2	0.2073	2
N	3434		1427		2007		1200		943	
No of countries	17		17		17		17		17	
Overall Fit Statistic	0.163		0.145		0.222		0.456		0.421	

Notes: Unbanked is a dummy of 1 if the individual has no account at a financial institution or 0 otherwise. There is a drop in observations largely because the estimations are restricted to only the unbanked population. Domin. Stat. is the standardized version of the general dominance statistics. Overall Fit Statistic show the total variation in the unbanked that can be explained by the present model.

Source: Authors' computation (2024)

Table 16: General dominance statistics for the relative importance of predictors of unbanked in the LAC region

	Full		Men		Women		Rural		Urban	
Predictors	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank
Distance (too far)	0.0033	6	0.0305	4	0.0025	8	0.0348	6	0.0370	6
Cost (too expensive)	0.0014	7	0.0054	7	0.0025	7	0.0975	5	0.0396	5
Lack of documentations	0.1041	2	0.0613	2	0.1158	3	0.2221	2	0.0767	3
Lack of trust	0.0012	8	0.0257	5	0.0224	5	0.0216	7	0.0015	8
Religion (religious reasons)	0.0769	3	0.0033	8	0.1952	2	0.1045	4	0.0488	4
Lack of money (income)	0.0573	4	0.0146	6	0.0768	4	0.3606	1	0.0773	2
A family member has an account	0.7303	1	0.8272	1	0.5680	1	0.1422	3	0.7154	1
lack of need (No need)	0.0255	5	0.0320	3	0.0167	6	0.0167	8	0.0037	7
N	7754		2867		4887		2212		3624	
No of countries	19		19		19		19		19	
Overall Fit Statistic	0.172		0.177		0.181		0.143		0.173	

Notes under Table 4 apply here.

Source: Authors' computation (2024)

Table 17: General dominance statistics for the relative importance of predictors of unbanked in the MENA region

Predictors	Full		Men		Women		Rural		Urban	
	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank
Distance (too far)	0.1552	2	0.0987	5	0.1257	2	0.1216	3	0.1322	4
Cost (too expensive)	0.0111	7	0.0498	6	0.0190	5	0.0167	5	0.0379	6
Lack of documentations	0.0029	8	0.0179	8	0.0395	4	0.0033	8	0.0269	8
Lack of trust	0.0885	4	0.0479	7	0.0535	3	0.4305	1	0.1708	2
Religion (religious reasons)	0.5300	1	0.1468	3	0.7547	1	0.3774	2	0.1381	3
Lack of money (income)	0.0938	3	0.2354	2	0.0014	8	0.0114	7	0.0802	5
A family member has an account	0.0364	6	0.1177	4	0.0039	6	0.0146	6	0.3790	1
lack of need (No need)	0.0820	5	0.2857	1	0.0022	7	0.0244	4	0.0348	7
N	5929		2710		3219		531		2825	
No of countries	14			14			14		14	
Overall Fit Statistic	0.188		0.105		0.128		0.1953		0.163	

Notes: Unbanked is dummy of 1 if the individual has no account at a financial institution or 0 otherwise. There is a drop in observations largely because the estimations are restricted to only the unbanked population. Domin. Stat. refers to the standardized version of the general dominance statistics. Overall Fit Statistic show the total variation in the unbanked that can be explained by the present model. Overall Fit Statistic show the total variation in the unbanked that can be explained by the present model.

Source: Authors' computation (2024)

Table 18: General dominance statistics for the relative importance of predictors of unbanked in the SA region

	Full		Men		Women		Rural		Urban	
Predictors	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank
Distance (too far)	c	6	0.5557	1	0.2102	3	0.1991	3	0.2293	1
Cost (too expensive)	0.5357	1	0.0311	5	0.3852	1	0.0526	6	0.1895	3
Lack of documentations	0.0369	7	0.2099	2	0.2749	2	0.0023	8	0.0674	5
Lack of trust	0.0626	4	0.0984	3	0.0108	6	0.0056	7	0.0641	6
Religion (religious reasons)	0.0594	5	0.0065	6	0.0242	5	0.0850	4	0.1965	2
Lack of money (income)	0.0227	8	0.0047	7	0.0053	8	0.0705	5	0.1884	4
A family member has an account	0.0912	3	0.0894	4	0.0097	7	0.2957	1	0.0018	8
lack of need (No need)	0.1499	2	0.0044	8	0.0798	4	0.2892	2	0.0630	7
N	3187		1477		1710		1583		1531	
No of countries	6		6		6		6		6	
Overall Fit Statistic	0.156		0.151		0.1272		0.183		0.145	

Notes under Table 6 apply here.

Overall Fit Statistic show the total variation in the unbanked that can be explained by the present model.

Source: Authors' computation (2024)

Table 19: General dominance statistics for the relative importance of predictors of unbanked in the SSA region

	Full		Men		Women		Rural		Urban	
	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank	Domin. Stat.	Rank
Distance (too far)	C	7	0.0125	7	0.0088	7	0.0147	6	0.0136	6
Cost (too expensive)	0.0111	6	0.0053	8	0.0212	5	0.0065	7	0.0296	5
Lack of documentations	0.0041	8	0.0267	6	0.0178	6	0.0037	8	0.0133	7
Lack of trust	0.0849	4	0.0444	5	0.1084	4	0.0356	5	0.1268	4
Religion (religious reasons)	0.2893	2	0.3946	1	0.1909	3	0.2156	2	0.3833	1
Lack of money (income)	0.0478	5	0.1197	3	0.0084	8	0.0917	4	0.0096	8
A family member has an account	0.4027	1	0.3151	2	0.4445	1	0.4903	1	0.2752	2
Lack of need (No need)	0.1525	3	0.0817	4	0.1999	2	0.1419	3	0.1486	3
N	21473		9309		12164		11521		9239	
No of countries	36		36		36		36		36	
Overall Fit Statistic	0.175		0.165		0.210		0.150		0.226	

Notes: Unbanked is a dichotomous variable that takes a value of 1 if the individual has no account at a financial institution such as a bank, credit union, microfinance institution, or cooperative or has no debit card and 0 otherwise. There is a drop in observations largely because the estimations are restricted to only the unbanked population, Domin. Stat. refers to the standardized version of the general dominance statistics, Overall Fit Statistic show the total variation in the unbanked that can be explained by the present model.
Source: Authors' computation (2024)

lack of money is the leading predictor of rural people in the LAC region. In contrast, in the EAP region, lack of money is the leading predictor of being unbanked in both rural and urban localities, followed by lack of need for financial services. As far as the MENA region is concerned, religion and a lack of trust in financial institutions are the leading predictors of unbanked in rural areas. On the contrary, a family member has an account and a lack of trust in financial institutions plays the same role in urban areas.

Chapter Summary

This chapter has examined the global incidence of financial inclusion and further investigated the relative importance of the major factors accounting for the global unbanked. Based on the findings, this chapter draws three conclusions. First, globally, the incidence of financial inclusion has improved substantially, however, progress has been so uneven with some regions such as EAP and ECA having high rates of financial inclusion exceeding 90 percent while other regions such as SA, MENA and SSA have undesirable incidence of inclusion below 60 percent. The second conclusion is that, despite the uneven distribution in access to and use of financial services across regions, conceptualisation of financial inclusion matter in ascertain the incidence of inclusion. Incorporating both formal and informal finance into the conceptualisation of financial inclusion shows that significant strides has been made across all although more efforts are required in regions such as SA, MENA and SSA. Finally, there are several factors accounting the global unbanked, however, the three most important factors for people being unbanked are when family members already own a financial account, lack of money/income and distance to financial institutions.

CHAPTER FIVE

FINANCIAL INCLUSION GENDER AND LOCATION GAPS

Introduction

This chapter presents empirical results on the inequalities of financial inclusion across gender and location gaps globally. The focus of the chapter was to examine the factors causing the persistent financial inclusion gender and location gaps. Specifically, the study hypothesized that in terms of demographic characteristics and location of individuals, there is no significant differences in financial inclusion. Therefore, the chapter is divided into three sections. The first section presents and discusses the inequalities of financial inclusion (FI) across gender and location at the global level. Section three presents and discusses results across the six main regions of the world.

Inequalities of financial inclusion (FI) across gender and location at the global level

Table 20 presents result on the inequalities of financial inclusion across gender and location at the global level using the Blinder-Oaxaca decomposition. Column (1) of Table 20 shows the gender gap while column (2) shows the location gap. In Table 20, is it evident that globally, 76.9 percent of males are financially included while 68.7 percent of females are financially included, hence, resulting in a gender gap of 8.1 percent against females. What this means is that access to and use of financial services favours males compared to females. This study's finding that globally the financial inclusion gender gap is 8.1 percentage points against females is largely consistent with other studies ((Demirgüç-Kunt et al., 2022; World Bank, 2019; Yeyouomo et al., 2023). The World Bank (2019), for example, using only formal financial services found the

global financial inclusion gender gap to be 7.0 percentage points. Demirgüç-Kunt et al., (2022) using only formal bank accounts estimated this gap to be 6.0 percentage points.

It is important to, however, stress that the current is unique from previous works in several important ways. First, previous works have not been able to ascertain whether the FI gender gap is statistically significant or otherwise. As shown in Table 20, the current study demonstrated that the FI gender gap is significant and thus, should be given policy attention. Further, given the various factors in Table 20, the estimated model explained 56.8% (i.e., 0.046 out of 0.081) of the total FI gender gap, an important step that is missing in existing literature. Moreover, Table 20 indicates that a significantly larger proportion of the FI gender gap is due to differences in endowments in favour of males and again, a step missing in previous works. Given that the endowments alone explained approximately 63.0 percent (i.e. 0.051 out of 0.081) of the entire FI gender gap and are statistically significant at one percent alpha level, we can infer that adjusting females' endowments or opportunities to be apar with that of their male counterparts will reduce the current FI gender gap by 63.0 percent globally.

Finally, Table 20 indicates that some parts (0.043 out of 0.081 represent 53.0%) of the current FI gender gap are due to differences in coefficients (that is differences in the effect of the individual's characteristics). However, it is important to emphasise that the interplay or interaction between an individual's endowments and the coefficients equally has a significant role to play in the FI gender gap (it explains about 16.0% or 0.013 out of 0.081) and most importantly the resultant effect from such interaction is negative. The negative sign indicates

that such interaction effects favour females than males. Again, it is worth cautioning that the sum of the endowments, coefficients and interaction must sum up to the total gap (that is, 0.051 + 0.043 + (-0.013) = 0.081) or (63.0% + 53.0% -16.0% = 100%).

In terms of the FI location gap, Table 20 indicates that globally, 79.1 percent of urban dwellers are financially included while 49.3 percent of those in rural areas are financially included, hence, resulting in a location gap of approximately 30.0 percent in favour of those in urban areas. The implication is that access to and use of financial services is largely tilted towards urban dwellers at the disadvantage of those in rural localities. Further, given the various factors in Table 20, our model can explain 48.0 percent (i.e., 0.143 out of 0.298) of the total FI location gap. Moreover, Table 20 indicates that the endowments alone explained approximately 46.6 percent (i.e. 0.139 out of 0.298) of the entire FI location gap and are statistically significant at a one percent alpha level. Thus, we can infer that adjusting rural dwellers' endowments or opportunities to be apar with that of their urban counterparts will reduce the current FI location gap by 46.6 percent.

However, unlike the FI gender gap, here we find that a significant part (51.7% or 0.154 out of 0.298) of the FI location gap is largely due to differences in the coefficients. What this means is that differences in locations play a significant role in the current FL location gaps. It is intuitive and consistent with the realities given that most of the financial institutions are highly concentrated in urban areas or cities or business towns. The fact that about 79.1 percent of individuals in urban areas have access to and use of financial services compared to only 49.3 for the case of rural people should tell the advantages the former

enjoys over the latter by location. However, unlike the FI gender gap, we find no evidence that the current FI location gap is due to differences in the interplay or interaction between endowments and coefficients between the two groups.

Table 20: Evidence of FI gender and location gaps, globally

	(1)	(2)
VARIABLES	Gender	Location
Male	0.769***	
	(0.002)	
Female	0.687***	
	(0.002)	
Urban		0.791***
		(0.001)
Rural		0.493***
		(0.003)
Difference (Gap)	0.081***	0.298***
	(0.002)	(0.003)
Total gap Explained	0.046***	0.143***
	(0.001)	(0.001)
Endowments	0.051***	0.139***
	(0.001)	(0.003)
Coefficients	0.043***	0.154***
	(0.002)	(0.003)
Interaction	-0.013***	0.005
	(0.001)	(0.003)
Observations	143,420	143,420

Source: Authors' computation (2024)

Factors contributing to the FI gender and location gaps at the global level

Table 21 presents result for the factors contributing to the FI gender and location gaps, but their contributions to the endowments are available in Table A1 in the Appendix. Column (1) of Table 21 shows the contributing factor to the gender gap while column (2) shows the case for the location gap. By gender, Table 2 shows that the leading contributor to the FI gender gap is employment. Specifically, being employed contributes to nearly 63.0 percent (i.e., 0.029 out of 0.046) of the total explained gap and the negative sign implies that it favours females compared to males. The second major contributing factor to the current gap is education. Precisely, having at least a primary education contributes to

about 15.2.0 percent (i.e., 0.007 out of 0.046) and the positive sign implies that having at least a primary education boosts FI compared to not having such education. Finally, the third factor explaining most of the FI gender gap is location and specifically, living in an urban area contributes to 8.7 percent (i.e., 0.004 out of 0.046).

Table 21: Factors contributing to the FI gender and location gaps, globally.

	(1)	(2)
Factors	Gender	Location
Male		0.001***
		(0.000)
Rural	0.004***	
	(0.000)	
Age 15-25	0.000	0.011***
	(0.000)	(0.000)
Age 26-36	-0.000	0.001***
	(0.000)	(0.000)
Age 37-47	-0.000***	-0.000***
	(0.000)	(0.000)
Age 48-58	0.000	0.000
	(0.000)	(0.000)
Age 59+	-0.001***	0.006***
	(0.000)	(0.000)
Primary	0.007***	0.039***
	(0.001)	(0.006)
Secondary	0.005***	0.019***
	(0.001)	(0.002)
Tertiary	0.007***	0.054***
	(0.001)	(0.004)
Employed	-0.029***	0.002***
	(0.001)	(0.001)
Wealth second 20%	0.000	0.000
	(0.000)	(0.000)
Wealth middle 20%	-0.000**	-0.000**
	(0.000)	(0.000)
Wealth fourth 20%	0.000***	0.001***
	(0.000)	(0.000)
Wealth richest 20%	0.003***	0.004***
	(0.000)	(0.000)
Observations	143,420	143,420
Countries	138	138

Source: Authors' computation (2024)

By location, Table 21 shows that the leading contributor to the FI location gap is education. Precisely, having at least a primary education contributes to about 27.30 percent (i.e., 0.039 out of 0.143) and the positive sign implies that having at least a primary education contributes to FI compared to not having such education. The second factor contributing factor to the current FI location gap is age. Specifically, being young (i.e., belonging to age 15-25 years) contributes to nearly 7.7 percent (i.e., 0.011 out of 0.143) of the total explained gap and the positive sign implies that it favours males compared to females. Finally, the third factor explaining most of the FI location gap is employment and specifically, it contributes to 2.8 percent (i.e., 0.004 out of 0.143) of the gap in favour of males.

Evidence of the FI gender gaps across regions.

Table 22 presents result from the Blinder-Oaxaca decomposition on the inequalities of financial inclusion across the six main regions based on gender. Columns (1), (2), (3), (4), (5), and (6) of Table 22 show the results of the FI gender gap in the EAP, ECA, LAC, MENA, SA and SSA regions, respectively. Beginning with the EAP region, Table 22 evidenced that 86.4 percent of males are financially included while 81.5 percent of females are financially included, hence, resulting in a gender gap of 4.9 percent against females in the region. In this region, our model explained 61.1% (i.e., 0.030 out of 0.049) of the total FI gender gap. The finding that the FI gender gap in the EAP region is 4.9% is consistent with earlier studies (World Bank, 2019; Yeyouomo et al., 2023) who found the gap to be 5.0 percent.

It is worth noting that, this study distinguishes itself from previous literature in two ways. First, unlike the extant literature that is unable to

compartmentalise the gap in endowment, coefficient and interactions, the current study as shown in Table 22 indicates that a significantly larger proportion of the FI gender gap in the EAP region is due to differences in endowments in favour of males. Given that the endowments alone explained more than half (i.e., 61.2% or 0.030 out of 0.049) of the entire FI gender gap and are statistically significant at one percent alpha level, we can infer that adjusting females' endowments or opportunities to be apar with that of their male counterparts will reduce the current FI gender gap in the region by 61.2 percent. Secondly, while Table 22 indicates that some parts (i.e., 40.8% or 0.020 out of 0.049) of the current FI gender gap are due to differences in coefficients (that is differences in the effect of the individual's characteristics), there is no evidence that the current FI gender gap in the region is due to the interplay between the endowment and the coefficient.

Next is the ECA region where Table 22 indicates that 91.1% of males are financially included while 85.9 percent of females are financially included, hence, resulting in a gender gap of 5.2 percent against females in the region. The World Bank (2019) estimated this gap to be 5.0 percent in 2017. In this region, the model explained 44.2 percent (i.e., 0.023 out of 0.052) of the total FI gender gap. Moreover, Table 22 indicates that a significantly larger proportion of the FI gender gap in the ECA region is due to differences in endowments in favour of males. Given that the endowments alone explained half (i.e., 50.0% or 0.026 out of 0.052) of the entire FI gender gap and are statistically significant at one percent alpha level, we can infer that adjusting females' endowments or opportunities to be apar with that of their male counterparts will reduce the current FI gender gap in the region by 50.0 percent.

Regarding the LAC region, Table 22 indicates that while 69.9 percent of males are financially included, 59.8 percent of the females are financially included resulting in a gender gap of 10.0%. Existing literature World Bank, 2019; Yeyouomo et al., 2023) estimated the FI gender gap in the LAC region to be 6.0%. However, the current study is different from such work in several important directions. First, from previous work are silent on whether the FI gender gap in the region is significant or otherwise. Missing such an important step leaves no direction for policy. Therefore, to the extent that the current study can establish the current FI gender gap in the LAC region is statistically significant at one percent alpha level communities the relevance of the financial inclusion in equalisation along gender dimensions in the region. Besides, as shown in Table 22, the estimated model explained 53.0 percent (i.e., 0.053 out of 0.100) of the total FI gender gap, but this was unknown in previous works. Moreover, Table 22 indicates that a significantly larger proportion of the FI gender gap in the LAC region is due to differences in endowments in favour of males. Given that the endowments alone explained more than half (i.e., 56.0% or 0.056 out of 0.100) of the entire FI gender gap and are statistically significant at one percent alpha level, we can infer that adjusting females' endowments or opportunities to be apar with that of their male counterparts will reduce the current FI gender gap in the region by 56.0 percent.

In the MENA region, 66.0 percent and 56.5 percent of the males and females are financially included respectively, resulting in a gender gap of 9.5 percent. The study's finding that the FI gender gap in the MENA region is approximately 10.0 percent is similar to what is known in the existing literature where the FI gender gap ranges between 10.0% and 18.0 percent (see e.g.,

Demirgüç-Kunt et al., 2022; World Bank, 2019; Yeyouomo et al., 2023). However, the study currently departs from previous works in the following ways. First, in the MENA region, the model explained over half (i.e., 89.5% or 0.085 out of 0.095) of the total FI gender gap, but previously has not used econometric tools and so their simple frequencies used were unable to reach this far. Secondly, the previous literature was unable to establish whether the gap in region is significant, but the current study achieves this additional step and as shown in Table 22, a significantly larger proportion of the FI gender gap in the MENA region is due to differences in endowments in favour of males. Given that the endowments alone explained more than half (i.e., 90.5% or 0.086 out of 0.095) of the entire FI gender gap and are statistically significant at one percent alpha level, we can infer that adjusting females' endowments or opportunities to be apar with that of their male counterparts will reduce the current FI gender gap in the region by 90.5 percent. Additionally, Table 22 indicates that some parts of the current FI gender gap are due to differences in coefficients (that is differences in the effect of the individual's characteristics) also the interplay or interaction between an individual's endowments and the coefficients with the resultant effect from such interaction as being negative. The negative sign indicates that such interaction effects favour females than males.

Regarding the SA region, Table 22 indicates that 65.1 percent of males are financially included while 52.6 percent of females are financially included, hence, resulting in a gender gap of 12.5 percent against females in the region. In the SA region, our model explained over half (i.e., 80.8% or 0.101 out of 0.125) of the total FI gender gap. Moreover, Table 22 indicates that a

significantly larger proportion of the FI gender gap in the SA region is due to differences in endowments in favour of males. Given that the endowments alone explained more than half (i.e., 88.8% or 0.111 out of 0.125) of the entire FI gender gap and are statistically significant at one percent alpha level, we can infer that adjusting females' endowments or opportunities to be apar with that of their male counterparts will reduce the current FI gender gap in the region by 88.8%. Additionally, Table 22 indicates that some parts of the current FI gender gap are due to differences in coefficients (that is differences in the effect of the individual's characteristics) also the interplay or interaction between an individual's endowments and the coefficients with the resultant effect from such interaction as being negative. The negative sign indicates that such interaction effects favour females than males.

In the SSA region, Table 22 indicates that 63.0 percent of males are financially included while 51.9 percent of females are financially included, hence, resulting in a gender gap of 11.2 percent against females in the region. This finding is similar to the existing literature (see e.g., Demirgüç-Kunt et al., 2022; World Bank, 2019; Yeyouomo et al., 2023) where the FI gender gap in the region is estimated to fall between 10.0 percent and 11.0 percent However, the study current is unique to previous works in the following ways. In the SSA region, model explained over half (i.e., 64.3% or 0.072 out of 0.112) of the total FI gender gap and this was not known in previous works. Moreover, Table 22 indicates that a significantly larger proportion of the FI gender gap in the SSA region is due to differences in endowments in favour of males. Given that the endowments alone explained more than half (i.e., 65.2% or 0.073 out of 0.112) of the entire FI gender gap and are statistically significant at one percent alpha

level, we can infer that adjusting females' endowments or opportunities to be apar with that of their male counterparts will reduce the current FI gender gap in the region by 64.3 percent. Additionally, Table 22 indicates that some parts of the current FI gender gap are due to differences in coefficients (that is differences in the effect of the individual's characteristics) also the interplay or interaction between an individual's endowments and the coefficients with the resultant effect from such interaction as being negative. The negative sign indicates that such interaction effects favour females than males.

Table 22: Evidence of the FI gender gaps across regions.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	EAP	ECA	LAC	MENA	SA	SSA
Male	0.864***	0.911***	0.699***	0.660***	0.651***	0.630***
	(0.004)	(0.002)	(0.005)	(0.006)	(0.008)	(0.004)
Female	0.815***	0.859***	0.598***	0.565***	0.526***	0.519***
	(0.004)	(0.002)	(0.005)	(0.006)	(0.008)	(0.004)
Difference (gap)	0.049***	0.052***	0.100***	0.095***	0.125***	0.112***
	(0.005)	(0.003)	(0.007)	(0.008)	(0.011)	(0.005)
Total gap explained	0.030***	0.023***	0.053***	0.085***	0.101***	0.072***
	(0.003)	(0.001)	(0.003)	(0.005)	(0.006)	(0.002)
	[61.2%]	[44.2%]	[53.0%]	[89.5%]	[80.8%]	[64.3%]
Endowments	0.030***	0.026***	0.056***	0.086***	0.111***	0.073***
	(0.003)	(0.001)	(0.003)	(0.006)	(0.007)	(0.003)
	[61.2%]	[50.0%]	[56.0%]	[90.5%]	[88.8%]	[65.2%]
Coefficients	0.020***	0.035***	0.055***	0.080***	0.029**	0.042***
	(0.005)	(0.003)	(0.007)	(0.009)	(0.012)	(0.005)
Interaction	-0.001	-0.009***	-0.011***	-0.068***	-0.045***	-0.004*
	(0.000)	(0.001)	(0.004)	(0.007)	(0.009)	(0.002)
Observations	19,424	45,442	18,498	14,062	8,008	36,021
Countries	17	44	19	14	6	36

Source: Authors' computation (2024)

Factors contributing to the FI gender gaps across regions.

Table 23 presents result from the Blinder-Oaxaca decomposition on the factors contributing to the FI gender gaps across the six main regions, but their contributions to the endowments are available in Tables A2-A7 in the Appendix. It is important to underscore that to the best of the researcher's knowledge, no study has assessed the factors causing the FI gender at the global

level and therefore, all findings discussed in this section are unique to the existing literature. Columns (1), (2), (3), (4), (5), and (6) of Table 23 show the results for the EAP, ECA, LAC, MENA, SA and SSA regions, respectively.

Beginning with the EAP region shown in Column (1) of Table 23, the leading contributor to the FI gender gap in the region is location. Specifically, location contributes to nearly 40.0% (i.e., 0.012 out of 0.030) of the total explained gap and the positive sign implies that it favours those males compared to females. The second major contributing factor to the current FI gender gap in the EAP region is employment. Precisely, being employed contributes to about 33.3% (i.e., 0.010 out of 0.030) of the total explained gap and the negative sign implies that it favours females compared to males. Additionally, the third major factor contributing to most of the FI gender gap is education. Specifically, having at least a primary education contributes to about 20.0 percent (i.e., 0.006 out of 0.030) and the positive sign implies the advantage males enjoy over females in access to and use of financial services.

Column (2) of Table 23 shows the factors contributing to the FI gender gap in the ECA region. As shown in Column (2), unlike the EAP region, the leading contributor to the FI gender gap in the ECA region is employment. Precisely, being employed contributes to about 39.1 percent (i.e., 0.009 out of 0.023) of the total explained gap and the negative sign implies that it favours females compared to males. The second major contributing factor to the current FI gender gap in the ECA region is location. Specifically, living in rural areas contributes to nearly 21.7 percent (i.e., 0.005 out of 0.023) of the total explained gap and the positive sign implies that male financial inclusion favours males over females in the region. Moreover, the third major factor contributing to most

of the FI gender gap is education. Specifically, having at least a primary education contributes to about 13.0 percent (i.e., 0.003 out of 0.023) and the positive sign implies the advantage males enjoy over females in access to and use of financial services in the region.

Regarding the LAC region, Column (3) of Table 4 shows the factors contributing to the FI gender gap in the region. As shown in Column (3), likewise the ECA region, the leading contributor to the FI gender gap in the LAC region is employment. Precisely, being employed contributes to about 43.4% (i.e., 0.023 out of 0.053) of the total explained gap and the positive sign implies that financial inclusion favours males compared to females in the region. The second major contributing factor to the current FI gender gap in the LAC region is education. Specifically, having a tertiary education contributes to about 20.8 percent (i.e., 0.011 out of 0.053) and the positive sign implies the advantage males enjoy over females in access to and use of financial services in the region. Moreover, the third major factor contributing to most of the FI gender gap is wealth. Specifically, belonging to the richest 20 percent contributes to about 20.8 percent (i.e., 0.011 out of 0.053) and the positive sign implies the advantage males enjoy over females in access to and use of financial services in the region.

Regarding the MENA region, Column (4) of Table 23 shows the factors contributing to the FI gender gap in the region. As shown in Column (4), likewise the ECA and LAC regions, the leading contributor to the FI gender gap in the MENA region is employment. Precisely, being employed contributes to about 76.5% (i.e., 0.065 out of 0.085) of the total explained gap and the positive sign implies that financial inclusion favours males compared to females in the

region. Again, unlike the EAP and ECA regions, the second major contributing factor to the current FI gender gap in the MENA region is education. Specifically, having a tertiary education contributes to about 9.4 percent (i.e., 0.008 out of 0.085) and the positive sign implies the advantage males enjoy over females in access to and use of financial services in the region. Finally, compared to the EAP, ECA and LAC regions, the third major factor contributing to most of the FI gender gap is age. Specifically, belonging to the 15-25 years age group contributes to about 3.5 percent (i.e., 0.003 out of 0.085) and the negative sign implies that such an effect favours females over males.

Regarding the SA region, Column (5) of Table 23 shows the factors contributing to the FI gender gap in the region. As shown in Column (5), likewise the ECA, LAC and MENA regions, the leading contributor to the FI gender gap in the MENA region is employment. Precisely, being employed contributes to about 44.6% (i.e., 0.045 out of 0.101) of the total explained gap and the positive sign implies that financial inclusion favours males compared to females in the region. Again, unlike the EAP and ECA regions, the second major contributing factor to the current FI gender gap in the SA region is education. Specifically, having at least a secondary education contributes to about 31.7 percent (i.e., 0.032 out of 0.101) and the positive sign implies the advantage males enjoy over females in access to and use of financial services in the region. Finally, compared to the EAP, ECA and LAC regions, the third major factor contributing to most of the FI gender gap is age. Specifically, belonging to the 15-25 years age group contributes to about 5.0 percent (i.e., 0.005 out of 0.101) and the positive sign implies that such an effect favours males over females.

Table 23: Factors contributing to the explained part of the FI gender gap across regions.

	(1)	(2)	(3)	(4)	(5)	(6)
	EAP	ECA	LAC	MENA	SA	SSA
Rural	0.012***	0.005***	0.006***	0.001	0.002**	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Age 15-25	-0.002**	-0.000**	0.000	-0.003***	0.005***	0.004***
	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)
Age 26-36	0.000	0.000	0.000	-0.000	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Age 37-47	0.001**	0.000**	-0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age 48-58	-0.000	0.000	-0.000*	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age 59+	0.000	-0.003***	0.000	0.001	0.002***	0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Primary	0.006***	0.003***	-0.002	0.009	-0.022	0.016***
	(0.002)	(0.001)	(0.001)	(0.006)	(0.014)	(0.004)
Secondary	0.001	0.001	0.001	0.001	0.032***	0.012***
	(0.001)	(0.000)	(0.002)	(0.002)	(0.009)	(0.003)
Tertiary	0.004***	0.001**	0.011***	0.008**	0.026***	0.009***
	(0.001)	(0.001)	(0.002)	(0.004)	(0.006)	(0.001)
Employed	-0.010***	-0.009***	0.023***	0.065***	0.045***	0.021***
	(0.001)	(0.001)	(0.002)	(0.004)	(0.004)	(0.001)
Wealth second 20%	0.000	-0.001***	0.000	-0.000	0.000	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Wealth middle 20%	-0.000	-0.001***	-0.000	-0.000	0.000	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Wealth fourth 20%	-0.000	0.000*	0.001***	0.001	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Wealth richest 20%	0.001***	0.002***	0.011***	0.002***	-0.002	0.012***
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Observations	19,424	45,442	18,498	14,062	8,008	36,021
Countries	17	44	19	14	6	36

Source: Authors' computation (2024)

Regarding the SSA region, Column (6) of Table 23 shows the factors contributing to the FI gender gap in the region. As shown in Column (6), likewise the ECA, LAC and MENA regions and in contrast to the EAP region, the leading contributor to the FI gender gap in the SSA region is employment. Precisely, being employed contributes to about 29.2 percent (i.e., 0.021 out of

0.072) of the total explained gap and the positive sign implies that financial inclusion favours males compared to females in the region. The second major contributing factor to the current FI gender gap in the SSA region is education. Specifically, having at least a primary education contributes to about 22.2 percent (i.e., 0.016 out of 0.072) and the positive sign implies the advantage males enjoy over females in access to and use of financial services in the region. Moreover, likewise the LAC region and in contrast to the other regions, the third major factor contributing to most of the FI gender gap in the SSA region is wealth. Specifically, belonging to the richest 20 percent contributes to about 16.7% (i.e., 0.012 out of 0.072) and the positive sign implies the advantage males enjoy over females in access to and use of financial services in the region.

Evidence of the FI location gaps across regions.

Table 24 presents result from the Blinder-Oaxaca decomposition on the inequalities of financial inclusion across the six main regions based on location. Columns (1), (2), (3), (4), (5), and (6) of Table 24 show the results of the FI location gap in the EAP, ECA, LAC, MENA, SA and SSA regions, respectively. Beginning with the EAP region, Table 24 evidenced that 89.4 percent of urban dwellers are financially included while 88.6 percent of those in rural localities are financially included, hence, resulting in a location gap of 8.0% against those in rural areas in the region. Further, in the EAP region, our model explained over half (i.e., 75.0% or 0.006 out of 0.008) of the total FI location gap.

Moreover, Table 24 indicates that a significantly larger proportion of the FI location gap in the EAP region is due to differences in endowments in favour of urban dwellers. Given that the endowments alone explained more than half (i.e., 62.5% or 0.005 out of 0.008) of the entire FI location gap and are

statistically significant at one percent alpha level, we can infer that adjusting rural dweller' endowments or opportunities to be apar with that of their urban counterparts will reduce the current FI location gap in the region by 62.5 percent. Additionally, Table 24 indicates that some parts (i.e., 50.0% or 0.004 out of 0.008) of the current FI location gap are due to differences in coefficients (that is differences in the effect of the locational characteristics) and that the interaction between the endowment and the coefficient matter to the extent that it favours those in rural localities over those in urban areas.

Next is the ECA region where Table 24 indicates that 90.7 percent of urban areas are financially included while 90.1 percent of those in the rural areas are financially included, hence, resulting in a location gap of 6.0 percent against rural dwellers in the region. Further, in this region, our model explained 83.3% (i.e., 0.005 out of 0.006) of the total FI location gap. Moreover, Table 24 indicates that a significantly larger proportion of the FI location gap in the ECA region is due to differences in endowments in favour of those in urban localities. Given that the endowments alone explained over half (i.e., 83.3% or 0.005 out of 0.006) of the entire FI location gap and are statistically significant at one percent alpha level, we can infer that adjusting rural dwellers' endowments or opportunities to be apar with that of their urban counterparts will reduce the current FI location gap in the region by 83.3 percent.

Regarding the LAC region, Table 24 indicates that while 69.0% of those in urban areas are financially included, 44.3 percent of those in rural areas are financially included resulting in a location gap of 24.8 percent. Further, in this region, our model explained 77.4 percent (i.e., 0.192 out of 0.248) of the total FI location gap. Moreover, Table 24 indicates that a significantly larger

proportion of the FI location gap in the LAC region is due to differences in endowments in favour of those in urban localities. Given that the endowments alone explained more than half (i.e., 76.6% or 0.190 out of 0.248) of the entire FI location gap and are statistically significant at one percent alpha level, we can infer that adjusting rural people's endowments or opportunities to be apar with that of their urban counterparts will reduce the current FI location gap in the region by 76.6 percent.

In the MENA region, 61.7 percent and 34.7 percent of those in urban and rural areas are financially included respectively, resulting in a location gap of 26.9 percent. In the MENA region, our model explained over half (i.e., 36.4% or 0.269 out of 0.098) of the total FI location gap. Moreover, Table 24 indicates that a significantly larger proportion of the FI location gap in the MENA region is due to differences in endowments in favour of urban dwellers. Given that the endowments alone explained more than half (i.e., 63.9% or 0.172 out of 0.269) of the entire FI location gap and are statistically significant at one percent alpha level, we can infer that adjusting females' endowments or opportunities to be apar with that of their male counterparts will reduce the current FI location gap in the region by 63.9 percent. Additionally, Table 24 indicates that some parts of the current FI location gap are due to differences in coefficients (that is differences in the effect of the locational characteristics). However, there is no evidence that the interplay or interaction between endowments and the coefficients plays a role in the current FI location gap in the region.

Regarding the SA region, Table 24 indicates that 64.6 percent of urban areas are financially included while 54.5 percent of those in rural areas are financially included, hence, resulting in a location gap of 19.1 percent against

those in the rural localities in the region. In the SA region, our model explained over half (i.e., 73.3% or 0.140 out of 0.191) of the total FI location gap. Moreover, Table 24 indicates that a significantly larger proportion of the FI location gap in the SA region is due to differences in endowments in favour of those in urban localities. Given that the endowments alone explained more than half (i.e., 63.9% or 0.122 out of 0.191) of the entire FI location gap and are statistically significant at one percent alpha level, we can infer that adjusting rural people's endowments or opportunities to be apar with that of their male counterparts will reduce the current FI location gap in the region by 63.9 percent. Additionally, Table 24 indicates that some parts of the current FI location gap are due to differences in coefficients (that is differences in the effect of the locational characteristics) and the interplay or interaction between endowments and the coefficients with the resultant effect from such interaction as being positive. The positive sign indicates that such interaction effects favour those in urban areas relative to rural folks.

In the SSA region, Table 24 indicates that 65.5 percent of urban areas are financially included compared to 47.9 percent of rural folks that are financially included, hence, resulting in a location gap of 17.5 percent in favour of those in urban sittings in the region. Further, in the SSA region, our model explained over half (i.e., 56.0% or 0.098 out of 0.175) of the total FI location gap. Moreover, Table 24 indicates that a significantly larger proportion of the FI location gap in the SSA region is due to differences in endowments in favour of those in urban areas. Given that the endowments alone explained more than half (i.e., 60.0% or 0.105 out of 0.175) of the entire FI location gap and are statistically significant at one percent alpha level, we can infer that adjusting

rural people's endowments or opportunities to be apar with that of their urban counterparts will reduce the current FI location gap in the region by 60.0 percent. Additionally, Table 24 indicates that some parts of the current FI location gap are due to differences in coefficients (that is differences in the effect of the locational characteristics) and the interplay or interaction between the endowments and the coefficients with the resultant effect from such interaction as being negative. The negative sign indicates that such interaction effects favour those in urban areas compared to the rural people.

Table 24: Evidence of the location gaps across regions

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	EAP	ECA	LAC	MENA	SA	SSA
Urban	0.894***	0.907***	0.690***	0.617***	0.646***	0.655***
	(0.002)	(0.001)	(0.004)	(0.004)	(0.007)	(0.003)
Rural	0.886***	0.901***	0.443***	0.347***	0.545***	0.479***
	(0.009)	(0.009)	(0.008)	(0.016)	(0.008)	(0.004)
Difference (gap)	0.008***	0.006***	0.248***	0.269***	0.191***	0.175***
	(0.000)	(0.001)	(0.009)	(0.017)	(0.011)	(0.005)
Total gap explained	0.006***	0.005***	0.192***	0.098***	0.140***	0.098***
	(0.004)	(0.002)	(0.004)	(0.007)	(0.004)	(0.002)
	[75.0%]	[83.3%]	[77.4%]	[36.4%]	[73.3%]	[56.0%]
Endowments	0.005***	0.005***	0.190***	0.172***	0.122***	0.105***
	(0.012)	(0.002)	(0.006)	(0.016)	(0.006)	(0.003)
	[62.5%]	[83.3%]	[76.6%]	[63.9%]	[63.9%]	[60.0%]
Coefficients	0.004***	0.002***	0.155***	0.084***	0.036***	0.082***
	(0.010)	(0.000)	(0.009)	(0.014)	(0.011)	(0.005)
Interaction	-0.001***	-0.001***	0.001	0.014	0.033***	-0.011***
	(0.000)	(0.006)	(0.006)	(0.010)	(0.006)	(0.003)
Observations	19,424	45,442	18,498	14,062	8,008	36,021
Countries	17	44	19	14	6	36

Source: Authors' computation (2024)

Factors contributing to the FI location gaps across regions.

Table 25 presents result from the Blinder-Oaxaca decomposition on the factors contributing to the FI location gaps across the six main regions, but their contributions to the endowments are available in Tables A2-A7 in the Appendix. Likewise, in Tables 22 and 23, to the best of the researcher's knowledge, no study has assessed the factors causing the FI location gap at the global scale and therefore, all findings discussed in this section are unique to the existing literature. Columns (1), (2), (3), (4), (5), and (6) of Table 25 show the results for the EAP, ECA, LAC, MENA, SA and SSA regions, respectively. Beginning with the EAP region shown in Column (1) of Table 25, the leading contributor to the FI location gap in the region is education. Specifically, having at least a primary education contributes to about 25.0 percent (i.e., 0.002 out of 0.008) and the positive sign implies the advantage those in urban areas enjoy over their rural counterparts in access to and use of financial services.

The second major contributing factor to the current FI location gap in the EAP region is employment. Precisely, being employed contributes to about 25.0% (i.e., 0.002 out of 0.008) of the total explained gap and the positive sign implies that it favours urban folks compared to their rural equals. Additionally, the third major factor contributing to most of the FI location gap is wealth. Specifically, belonging to the richest 20 percent contributes to 12.5 percent (i.e., 0.001 out of 0.008) and the positive sign implies that it favours those in urban areas more than those in rural areas.

Column (2) of Table 25 shows the factors contributing to the FI location gap in the ECA region. As shown in Column (2), unlike the EAP region, the leading contributor to the FI location gap in the ECA region is employment.

Precisely, being employed contributes to about 33.3 percent (i.e., 0.002 out of 0.006) of the total explained gap and the negative sign implies that it favours females compared to males. The second major contributing factor to the current FI location gap in the ECA region is education. Specifically, having at least a primary education contributes to about 33.3 percent (i.e., 0.002 out of 0.006) and the positive sign implies the advantage those in urban areas enjoy over their rural counterparts in access to and use of financial services. Moreover, the third major factor contributing to most of the FI location gap is wealth.

Regarding the LAC region, Column (3) of Table 25 shows the factors contributing to the FI location gap in the region. As shown in Column (3), unlike the ECA region, the leading contributor to the FI location gap in the LAC region is education. Precisely, having at least a secondary education contributes to at least 18.2 percent (i.e., 0.035 out of 0.192) and the positive sign implies the advantage those in urban areas enjoy over those in rural areas in access to and use of financial services in the region. The second major contributing factor to the current FI location gap in the LAC region is employment. Specifically, being employed contributes to about 5.7 percent (i.e., 0.11 out of 0.192) of the total explained gap and the positive sign implies that financial inclusion favours those in urban localities over those in rural settings in the region. Moreover, the third major factor contributing to most of the FI location gap is wealth. Specifically, belonging to the richest 20 percent contributes to about 5.2 percent (i.e., 0.010 out of 0.192) and the positive sign implies the advantage those in urban areas enjoy over those in rural areas in access to and use of financial services in the region.

Regarding the MENA region, Column (4) of Table 25 shows the factors contributing to the FI location gap in the region. As shown in Column (4), unlike the ECA, the leading contributor to the FI gap in the MENA region is education. Specifically, having a tertiary education contributes to about 43.9% (i.e., 0.043 out of 0.098) and the positive sign implies the advantage those in urban areas enjoy over those in rural areas in access to and use of financial services in the region. Likewise, in the EAP, ECA and LAC regions, the second major contributing factor to the current FI location gap in the MENA region is employment. Precisely, being employed contributes to about 14.3 percent (i.e., 0.014 out of 0.098) of the total explained gap. Finally, compared to the EAP, ECA and LAC regions, the third major factor contributing to most of the FI gender gap is age. Specifically, belonging to the 15-25 years age group contributes to about 6.1 percent (i.e., 0.006 out of 0.098) of the total explained gap.

Regarding the SA region, Column (5) of Table 25 shows the factors contributing to the FI gender gap in the region. As shown in Column (5), likewise the EAP, LAC, and MENA regions and in contrast to the ECA region, the leading contributor to the FI location gap in the SA region is education. Specifically, having at least a secondary education contributes to about 50.7% (i.e., 0.071 out of 0.140) and the positive sign signals the advantage those in urban areas enjoy over those in rural areas in access to and use of financial services in the region. Further, the second major contributing factor to the current FI location gap in the SA region is employment. Precisely, being employed contributes to about 2.0 percent (i.e., 0.003 out of 0.140) of the total explained gap. Finally, like the MENA region and in contrast to the EAP, ECA

and LAC regions, the third major factor contributing to most of the FI location gap is age. Specifically, belonging to the 15-25 years age group contributes to about 2.0 percent (i.e., 0.003 out of 0.140) of the total explained gap.

Table 25: Factors contributing to the explained part of the FI location gap across regions.

	(1)	(2)	(3)	(4)	(5)	(6)
	EAP	ECA	LAC	MENA	SA	SSA
Male	0.000	0.000	0.003***	0.001	0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
Age 15-25	0.001**	0.001**	0.000	0.006**	-0.002***	-0.000
	(0.001)	(0.000)	(0.001)	(0.003)	(0.002)	(0.001)
Age 26-36	0.001	0.000	-0.000	-0.002	0.001	-0.000
	(0.001)	(0.000)	(0.000)	(0.002)	(0.001)	(0.000)
Age 37-47	0.000	0.000**	-0.000	-0.001*	0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Age 48-58	0.000**	0.001**	-0.000	0.000	0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age 59+	0.000	0.001	0.000	-0.005**	0.002	-0.000
	(0.000)	(0.001)	(0.000)	(0.003)	(0.001)	(0.000)
Primary	0.002***	0.002***	-0.012	0.034	-0.031	0.035***
	(0.016)	(0.004)	(0.009)	(0.021)	(0.020)	(0.008)
Secondary	0.001*	-0.003	0.035***	0.003	0.071***	0.027***
	(0.006)	(0.002)	(0.006)	(0.005)	(0.019)	(0.006)
Tertiary	0.002***	0.002***	0.039***	0.043***	0.006*	0.016***
	(0.010)	(0.006)	(0.004)	(0.017)	(0.003)	(0.002)
Employed	0.002***	-0.002***	0.011***	0.014***	-0.003**	0.002***
	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
Wealth second 20%	0.000	-0.001***	0.000	0.000	0.000	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Wealth middle 20%	0.000	-0.001***	-0.000	0.000	0.001*	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Wealth fourth 20%	0.001	0.001***	0.003***	0.001*	-0.000	0.002***
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Wealth richest 20%	0.001***	0.001***	0.010***	0.003**	-0.004	0.023***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.002)	(0.001)
Observations	19,424	45,442	18,498	14,062	8,008	36,021
Countries	17	44	19	14	6	36

Source: Authors' computation (2024)

Regarding the SSA region, Column (6) of Table 25 shows the factors contributing to the FI location gap in the region. As shown in Column (6),

likewise the EAP, LAC, and MENA regions and in contrast to the ECA region, the leading contributor to the FI location gap in the SSA region is education. Specifically, having at least a primary education contributes to about 35.7 percent (i.e., 0.035 out of 0.098) and the positive sign is indicative of the advantage those in the urban areas enjoy over those in the rural areas in access to and use of financial services in the region. Precisely, being employed contributes to about 29.2% (i.e., 0.021 out of 0.072) of the total explained gap and the positive sign implies that financial inclusion favours males compared to females in the region. Moreover, compared to the rest of the regions, the second major contributing factor to the current FI location gap in the SSA region is wealth. Specifically, belonging to the richest 20 percent contributes to about 23.5 percent (i.e., 0.023 out of 0.098) and the positive sign is indicative of the advantage those in the urban areas enjoy over those in the rural areas in access to and use of financial services in the region. Finally, and in contrast to the other regions, the third major factor contributing to most of the FI gender gap in the SSA region is employment.

Chapter Summary

This chapter analysed the factors causing financial inclusion (FI) gender and location gaps worldwide. Based on the findings, the chapter arrives at two conclusions. First, generally, education, employment and wealth are the three major factors accounting for the FI gender and location gaps. In SA, MENA and SSA regions where the incidence of financial inclusion is lower that the global average, having at least a primary education, employment, and wealth are the major factors contributing to the gender and location gap. Finally, a significant proportion of the FI gender and location gaps are due to differences in

endowment/opportunities with females and rural dwellers largely disadvantaged. Thus, improving women's and rural dwellers' endowments or opportunities to be at par with their men and urban counterparts will reduce over half percent of the FI gender and location gaps with much success in the financially deprived regions such as SA and SSA stand to benefit more.

CHAPTER SIX

DIGITAL FINANCIAL INCLUSION AND FINANCIAL RESILIENCE

Introduction

This chapter presents empirical results on digital financial inclusion-financial resilience nexus across gender and location gaps globally. The focus of the chapter was to examine the effect of digital financial inclusion (DFI) on financial resilience. Specifically, the study hypothesized DFI has no significant relationship with the current financial inclusion gender and location gaps. Therefore, the chapter is divided into two sections. The first section presents and discusses the results of the bivariate analysis of the statistical association between financial resilience and digital financial inclusion (DFI). The second section presents and discusses the results of the multivariate analysis of the effect of digital financial inclusion on financial resilience.

Bivariate analysis

Figure 1 represents results for the statistical association between financial resilience and digital financial inclusion (DFI). Globally, among the digitally excluded, only 15.80 percent are financially resilient while the remaining over 84.0 percent are not financially resilient. On the contrary, among the digitally included, more than half (54.0%) are financially resilient. The Pearson Chi-square values are all significant at a one percent level of significance. What this means is that financial resilience is not independent of DFI. Besides, the Cramer's V values for each test show that the association is strong. The positive association between financial resilience and DFI holds uniformly across all the six regions examined. Figure I further indicate that in each region, among the digitally included, more than half are financially

resilient compared to the digitally excluded group where an overwhelming proportion of them are not financially resilient. Beginning with the EAP region, for example, Figure 1 indicates that among the digitally excluded group, only 17.0 percent are financially resilient in contrast to the digitally included group where more than half (55.4%) are financially resilient.

Further, in the ECA region, only 25.5 percent of the digitally excluded group are financially resilient in contrast to the digitally included group where more than half (57.3%) are financially resilient. Likewise, in the EAP and ECA regions, in the LAC region, only 16.4 percent of the digitally excluded group are financially resilient compared to the digitally included group where more than 72.0 are financially resilient. Similarly, in the MENA region, only 20.5% of the digitally excluded group are financially resilient compared to the digitally included group where more than half (56.0%) are financially resilient. Additionally, in the SA region, less than 8.0 percent of the digitally excluded group are financially resilient compared to the digitally included group where more than 84.0 percent are financially resilient. Finally, in the SSA region, just 11.0 percent of the digitally excluded group are financially resilient compared to the digitally included group where more than 76.0 percent are financially resilient.

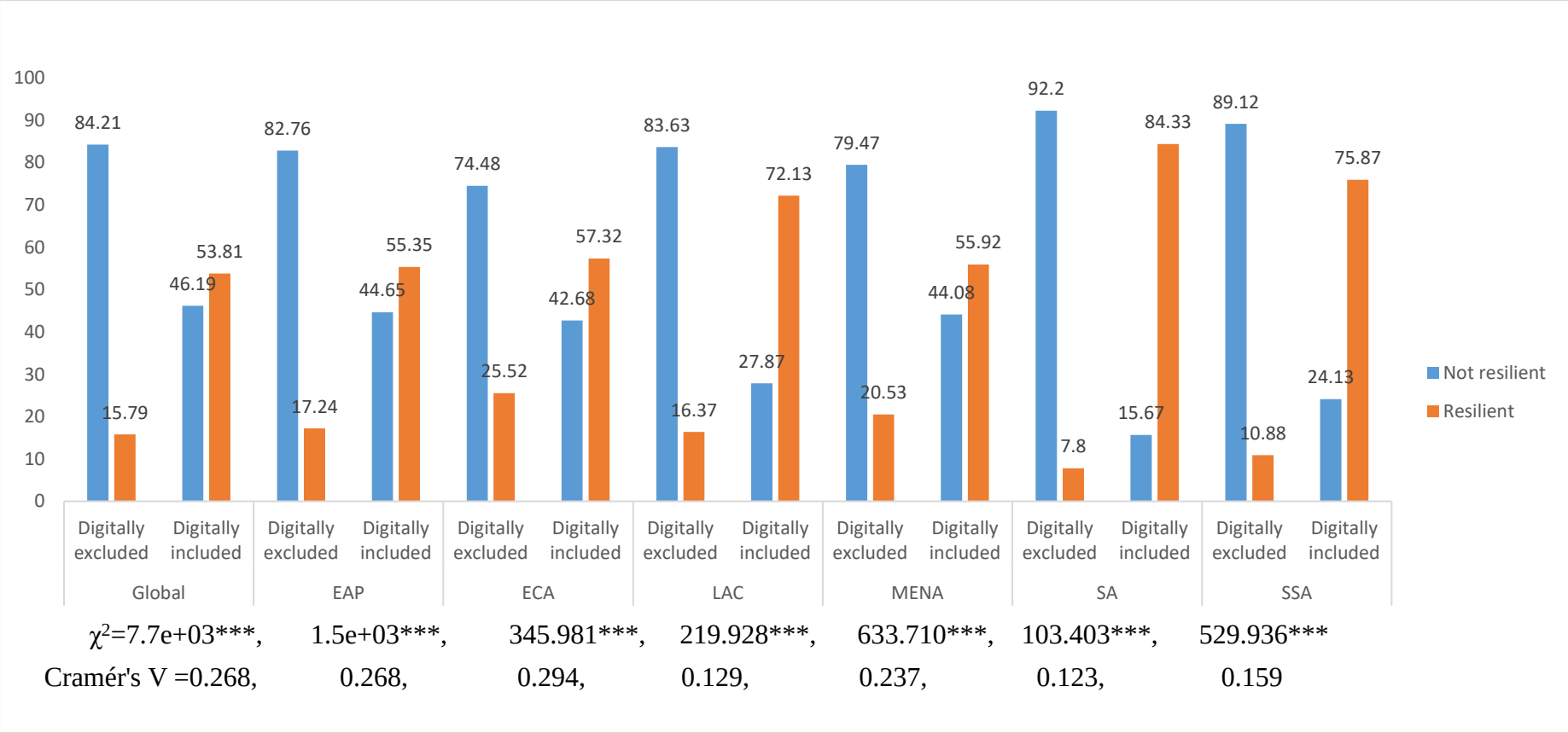

Figure 2: Statistical Association between Digital Financial Inclusion (DFI) and financial Resilience
Cramer's V shows the direction and strength of association.
Source: Authors' computation (2024)

Effect of digital financial inclusion on financial resilience

Table 26 presents result on the effects of digital financial inclusion (DFI) on financial resilience. Columns (1), (2), (3), (4), (5), (6), and (7) present results for the global, EAP, ECA, LAC, MENA, SA and SSA respectively. Starting with Column (1), Table 26 shows that globally, DFI has a significant positive effect on financial resilience. Specifically, DFI increases financial resilience by 1.7 percentage points, and it is statistically significant at a one percent alpha level. What this means is that DFI enhances individuals' level of financial resilience worldwide.

This study's finding DFI stimulates financial resilience at the global level also holds uniformly across all the six regions examined. For example, DFI significantly increases financial resilience by 2.3 percentage points in the EAP region, 2.4 percentage points in the ECA region, 3.6 percentage points in the LAC region, 6.1 percentage points in the MENA region, 8.7 percentage points in the SA region and finally, 3.7 percentage points in the SSA region. The second finding from Table 26 is that the positive effect of DFI on financial resilience is much more intense in poor regions. For example, while the positive effect of DFI on financial resilience is less than three per cent in advanced regions like EAP (2.3 percentage points) and ECA (2.4 percentage points), its effect is much greater in poor regions like SA (8.7 percentage points), MENA (6.1 percentage points) and the SSA region (3.7 percentage points).

This study's finding DFI increases financial resilience at both the global level and across all the six regions examined validates several assertions in the literature. First, the finding upholds Moore et al., (2019) claim that digital financial inclusion may help persons and households become more financially

resilient by assisting them respond quickly to emergencies. Demirgüç-Kunt et al., (2022) put forward that digitizing payments and other financial instruments enables individuals to be financially resilient through access to and use of digital channels and platforms in both private and public sectors. Others (Balogun et al., 2020; Copestake et al., 2022; Katz et al., 2020; Ouma et al., 2017) have expressed similar assertions that digital financial inclusion enhances people's financial resilience as Digital inclusion not only increasing the chances of savings but also significantly impacting the amount saved which prepares the beneficiaries to bounce back during and after shocks. Digitally included individuals can respond quickly to emergencies by sending and receiving monetary support to and from family members, co-workers, friends and acquaintances in case of emergencies (Koomson et al., 2021).

Regarding control variables like gender, Table 26 indicates that males are generally financially resilient compared to females. Precisely, compared to males, the probability of females being financially resilient decreases by 6.9 percentage points worldwide and it is statistically significant at one percent alpha, hence indicating the relevance of such variations. Further, Table 26 shows that the relationship between age and financial resilience is nonlinear and evidence is mixed. The younger adults (age) are more financially resilient than the older adults (age squared), particularly in regions like the EAP. However, in regions like the ECA, MENA, and SA the reverse holds where the older people (age squared) are more financially resilient compared to the younger ones (age). Specifically, in the ECA, MENA, and SA regions, older people (age squared) are one percentage point more financially resilient compared to the younger ones.

Table 26: Results on digital financial inclusion on financial resilience.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Global	EAP	ECA	LAC	MENA	SA	SSA
VARIABLES	ME	ME	ME	ME	ME	ME	ME
DFI	0.017***	0.023***	0.024***	0.036***	0.061***	0.087***	0.037***
	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Female (ref=male)	-0.069***	-0.062***	-0.077***	-0.109***	-0.051***	-0.031***	-0.029***
	(0.003)	(0.010)	(0.005)	(0.008)	(0.010)	(0.009)	(0.006)
Age	0.001*	0.006***	0.001	0.000	-0.001	-0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Age squared	0.001***	-0.000	0.001**	0.001**	0.001**	0.001*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Secondary	0.041***	0.015	0.071***	0.016	0.066***	0.005	0.028***
	(0.004)	(0.014)	(0.010)	(0.010)	(0.013)	(0.008)	(0.006)
Tertiary	0.126***	0.120***	0.144***	0.079***	0.160***	0.051***	0.143***
	(0.006)	(0.017)	(0.011)	(0.014)	(0.016)	(0.017)	(0.016)
Employed	0.023**	0.017***	0.013	0.028***	0.013**	0.019***	0.013***
	(0.004)	(0.002)	(0.006)	(0.001)	(0.001)	(0.001)	(0.002)
Second 20%	0.037***	0.069***	0.048***	0.014	0.036***	0.016*	0.018**
	(0.005)	(0.015)	(0.009)	(0.012)	(0.014)	(0.010)	(0.009)
Middle 20%	0.090***	0.122***	0.116***	0.065***	0.112***	0.028***	0.030***
	(0.005)	(0.016)	(0.009)	(0.012)	(0.014)	(0.010)	(0.009)
Fourth 20%	0.143***	0.202***	0.174***	0.096***	0.171***	0.058***	0.059***

	(0.005)	(0.017)	(0.009)	(0.012)	(0.015)	(0.013)	(0.009)
Richest 20%	0.274***	0.322***	0.287***	0.224***	0.347***	0.150***	0.154***
	(0.006)	(0.018)	(0.009)	(0.014)	(0.015)	(0.021)	(0.010)
Population	-0.020**	-0.007	-0.018	-0.027***	-0.050***	-0.012	-0.002
	(0.008)	(0.029)	(0.014)	(0.010)	(0.012)	(0.010)	(0.010)
GDP	0.085***	0.083***	0.123***	0.065***	0.010	0.000	0.008
	(0.009)	(0.030)	(0.017)	(0.018)	(0.017)	(0.024)	(0.014)
Random effects							
Variance (country)	0.160***	0.131***	0.161***	0.122**	0.025**	0.059***	0.060***
	(0.020)	(0.054)	(0.023)	(0.010)	(0.010)	(0.035)	(0.020)
Observations	105,128	12,827	40,333	13,002	11,680	6,797	20,489
Number of groups	138	17	44	19	14	6	36
Likelihood Ratio Test	6455.121***	723.030***	2025.126***	128.521***	98.001***	71.798***	290.091***

ME is the marginal effect. Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

Regarding education, Table 26 shows that education generally has a significant positive effect on individuals' financial resilience. Precisely, individuals with secondary education are 4.1 times more financially resilient compared to those with basic education, globally. Furthermore, those with tertiary education are 12.6 times more financially resilient compared to those with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education is key in promoting people's financial resilience.

Moreover, the positive effect of educational attainment on financial resilience is true across all six regions examined, and the effect is much more intense in regions like the ECA, MENA, and SSA compared to other regions. In terms of employment, Table 26 indicates that employment has a significant positive effect on financial resilience. Precisely, being employed increases one's financial resilience by 2.3 percentage points compared to being unemployed worldwide and it is statistically significant at a five percent alpha level. The implication is that employment stimulates financial resilience. At the regional level, Table 26 indicates that the positive effect of employment on financial resilience holds across all six regions and the effect is much more pronounced in regions like LAC, SA, and EAP compared to the rest of the regions.

In terms of wealth, Table 26 shows that wealth increases financial resilience. Specifically, belonging to the Second 20% increases financial resilience by 3.7 percentage points compared to belonging to the poorest 20 percent and this effect is even much greater when compared to the richest 20

percent. For example, those in the richest 20 percent are 27.4 times more financially resilient compared to those in the poorest 20 percent.

Regarding population and resilience, Table 26 shows that an increase in population decreases financial resilience. Specifically, a percentage increase in population decreases financial resilience by 2.0 percentage points and it is statistically significant at a one percent alpha level, implying that population growth has a serious repercussion for people's financial resilience. Finally, Table 26 shows that GDP per capita increases financial resilience. Precisely, a percentage increase in the GDP per capita increases financial resilience by 8.5 percentage points and the effect is statistically significant at a one percent alpha level.

Gender and location heterogeneities in the link between DFI and financial resilience (Global estimates)

Table 27 presents result for the effect of DFI on financial resilience along gender and locational dimensions worldwide. Table 2 indicates that DFI promotes financial resilience among both males and females, but its effect is greater for females compared to males. Precisely, DFI increases financial resilience by 1.5 percentage points among males and 4.0 percentage points among females and the differential magnitude of 2.5 percentage points in favour of females is statistically significant at a one percent alpha level. What this means is that the positive effect of DFI on financial resilience is much more intense among females relative to males. This finding strengthens the argument for the World Bank (2020a) that increases in female participation in financial inclusion is likely to generate US$160 trillion in income worldwide due to their resilience.

Regarding control variables like age, Table 27 shows that the relationship between age and financial resilience is nonlinear and evidence is mixed worldwide. While younger males are more financially resilient than older males, younger females are less financially resilient than older females globally. Along with location dimensions, Table 27 indicates that both young and older adults in urban areas are more financially resilient than their counterparts in rural settings globally. Precisely, both young and older adults in urban areas are 0.2 times and 0.1 times more financially resilient than their counterparts in the rural settings and the effect is statistically significant at a one percent alpha level indicating the relevance of such variations.

Regarding education, Table 27 shows that, globally, education generally has a significant positive effect on individuals' financial resilience, but its effect is much more intense among females compared to males. Precisely, males with secondary and tertiary education are 1.8 times and 11.7 times more financially resilient compared to their counterparts with basic education, globally. However, this effect is much higher among females. Specifically, females with secondary and tertiary education are 2.5 times and 18.6 times more financially resilient compared to their counterparts with basic education, these effects are statistically significant at a one percent alpha level, hence, implying that education is key in promoting people's financial resilience with a much higher effect among females compared to males.

Along location dimension, Table 27 shows that, globally, education generally has a significant positive effect on individuals' financial resilience, but its effect is much more intense among urban settlers compared to rural settlers. Precisely, urban settlers with secondary and tertiary education are 5.0

times and 13.5 times more financially resilient compared to their counterparts with basic education, globally. However, this effect is lower among rural settlers. Specifically, rural settlers with secondary and tertiary education are 1.1 times and 6.5 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education stimulates both urban and rural settlers' financial resilience with a much higher effect among urban settlers compared to rural settlers.

In terms of employment, Table 27 shows that, globally, employment generally has a significant positive effect on individuals' financial resilience, but its effect is much more intense among males compared to females. Precisely, males with employment are 0.8 times more financially resilient compared to their counterparts without employment, globally. However, this effect is lower among females. Specifically, females with employment are 0.8 times more financially resilient compared to their counterparts without employment. These effects are statistically significant at a five percent alpha level, hence, implying that employment is key in promoting people's financial resilience with a much higher effect among males compared to females.

Along location dimension, Table 27 shows that, globally, employment generally has a significant positive effect on individuals' financial resilience, but its effect is much more intense among urban settlers compared to rural settlers. Precisely, urban settlers with employment are 1.1 times more financially resilient compared to their counterparts without employment, globally. However, this effect is lower among rural settlers. Specifically, rural settlers with employment are 0.8 times more financially resilient compared to

their counterparts without employment. These effects are statistically significant at a five percent alpha level, hence, implying that employment is key in promoting people's financial resilience with a much higher effect among urban settlers compared to rural settlers.

Regarding wealth and resilience, Table 27 shows that wealth increases financial resilience among males and females, but its effect is much more pronounced among males compared to females. Specifically, males belonging to the Second 20% are 2.6 times more financially resilient compared to their belonging to the poorest 20% and this effect is even much greater when compared to the richest 20%. For example, males in the richest 20% are 22.3 times more financially resilient compared to their counterparts in the poorest 20%. Wealth also increases financial resilience among females, but the effect is lower compared to males. Specifically, females belonging to the Second 20% are 2.0 times more financially resilient compared to their equals belonging to the poorest 20%. Further, females in the richest 20% are 17.4 times more financially resilient compared to their counterparts in the poorest 20%.

Finally, Table 27 shows that wealth increases financial resilience among urban and rural dwellers, but its effect is much pronounced among urban settlers compared to rural settlers. Specifically, urban dwellers belonging to the Second 20% are 4.0 times more financially resilient compared to their belonging to the poorest 20% and this effect is even much greater when compared to the richest 20%. For example, urban dwellers in the richest 20% are 28.9 times more financially resilient compared to their counterparts in the poorest 20%. Wealth also increases financial resilience among rural dwellers, but the effect is lower compared to urban dwellers. Specifically, rural dwellers in the Second 20% are

2.0 times more financially resilient compared to their equals belonging to the poorest 20%. Further, rural dwellers in the richest 20% are 17.4 times more financially resilient compared to their counterparts in the poorest 20%.

Table 27: Effect of digital financial inclusion on financial resilience across Gender and location at the global level

		(1)	(2)	(3)	(4)
	Full	Gender		Location	
		Male	Female	Urban	Rural
VARIABLES	ME	ME	ME	ME	ME
DFI	0.017***	0.015***	0.040***	0.018***	0.050***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female (ref=male)	-0.069***			-0.075***	-0.040***
	(0.003)			(0.004)	(0.005)
Age	0.001*	0.002**	-0.002**	0.002***	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age squared	0.001***	0.001	0.001***	0.001***	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education (ref=basic)					
Secondary	0.041***	0.018***	0.025***	0.050***	0.011*
	(0.004)	(0.007)	(0.006)	(0.006)	(0.006)
Tertiary	0.126***	0.117***	0.186***	0.135***	0.065***
	(0.006)	(0.012)	(0.010)	(0.007)	(0.012)
Employed	-0.003	0.008**	0.007**	0.011**	0.006**
	(0.004)	(0.008)	(0.005)	(0.004)	(0.001)
Rural (ref=urban)		-0.017***	-0.010*		
		(0.006)	(0.005)		
Wealth (ref=Poorest 20%					
Second 20%	0.037***	0.026*	0.020***	0.040***	0.020***
	(0.005)	(0.009)	(0.007)	(0.006)	(0.007)
Middle 20%	0.090***	0.049***	0.047***	0.104***	0.033***
	(0.005)	(0.009)	(0.007)	(0.006)	(0.007)
Fourth 20%	0.143***	0.094***	0.077***	0.157***	0.072***
	(0.005)	(0.009)	(0.008)	(0.006)	(0.008)
Richest 20%	0.274***	0.223***	0.174***	0.289***	0.174***
	(0.006)	(0.010)	(0.009)	(0.006)	(0.011)
Population	-0.020**	-0.026***	-0.020***	-0.023**	-0.019***
	(0.008)	(0.008)	(0.007)	(0.009)	(0.007)
GDP	0.085***	0.009	0.007	0.084***	0.012
	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)
Observations	105,128	22,426	27,136	84,181	20,947

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

Gender and location heterogeneities in the link between DFI and financial resilience in the EAP region

Table 28 presents result for the effect of DFI on financial resilience along gender and locational dimensions in the EAP region. Table 28 indicates that DFI promotes financial resilience among both males and females in the EAP region, but its effect is greater for females compared to males. Precisely, DFI increases financial resilience by 1.6 percentage points among males and 3.3 percentage points among females and the differential magnitude of 1.7 percentage points in favour of females is statistically significant at a one percent alpha level. What this means is that the positive effect of DFI on financial resilience in the EAP region is much more intense among females relative to males.

Regarding control variables like age, Table 28 shows that the relationship between age and financial resilience is positive in the EAP region. While younger males are more financially resilient than older males, there is no evidence that age is linked to financial resilience among females in the region. Along with location dimensions, Table 28 indicates that age is positively linked to financial resilience, but this is true among urban dwellers only. For example, young adults in urban areas are 0.7 times more financially resilient than their counterparts in rural settings and the effect is statistically significant at a one percent alpha level indicating the relevance of such variations.

Regarding education, Table 28 shows that, in the EAP region, education generally has a significant positive effect on individuals' financial resilience, but its effect is much more intense among males compared to females. Precisely, males with tertiary education are 8.7 times more financially resilient compared

to their counterparts with basic education. However, this effect is much lower among females. Specifically, females with tertiary education are 1.6 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education is key in promoting people's financial resilience with a much higher effect among males compared to females.

Along location dimension, Table 28 shows that, in the EAP region, education generally has a significant positive effect on individuals' financial resilience, but its effect is much more intense among urban settlers compared to rural settlers. Precisely, urban settlers with tertiary education are 13.7 times more financially resilient compared to their counterparts with basic education, in the region. However, this effect is lower among rural settlers. Specifically, rural settlers with tertiary education are 1.7 times more financially resilient compared to their counterparts with basic education, these effects are statistically significant at a one percent alpha level, hence, implying that education stimulates both urban and rural settlers' financial resilience with a much higher effect among urban settlers compared to rural settlers.

In terms of employment, Table 28 shows that, in the EAP region, employment has a significant positive effect on financial resilience among both males and females, but its effect is much more intense among males compared to females. Precisely, males with employment are 0.4 times more financially resilient compared to their counterparts without employment, in the region. However, this effect is lower among females. Specifically, females with employment are 0.1 times more financially resilient compared to their counterparts without employment. These effects are statistically significant at a

five percent alpha level, hence, implying that employment is key in promoting people's financial resilience with a much higher effect among males compared to females.

Along location dimension, Table 28 shows that, in the EAP region, employment has a significant positive effect on financial resilience among both urban and rural settlers, but its effect is much more intense among urban settlers compared to rural settlers. Precisely, urban settlers with employment are 1.9 times more financially resilient compared to their counterparts without employment, globally. However, this effect is lower among rural settlers. Specifically, rural settlers with employment are 1.6 times more financially resilient compared to their counterparts without employment. These effects are statistically significant at a five percent alpha level, hence, implying that employment is key in promoting financial resilience in the EAP region with a much higher effect among urban settlers compared to rural settlers.

Regarding wealth and resilience, Table 28 shows that wealth increases financial resilience among males and females in the EAP region, but its effect is much more pronounced among males compared to females. Specifically, males in the richest 20% are 28.2 times more financially resilient compared to their counterparts in the poorest 20%. Wealth also increases financial resilience among females, but the effect is lower compared to males. Specifically, females in the richest 20% are 24.2 times more financially resilient compared to their counterparts in the poorest 20%.

Finally, Table 28 shows that wealth increases financial resilience among urban and rural settlers in the EAP region, but its effect is much more pronounced among urban settlers compared to rural settlers. Specifically, urban

settlers in the richest 20% are 31.0 times more financially resilient compared to their counterparts in the poorest 20%. Wealth also increases financial resilience among rural settlers, but the effect is lower compared to urban settlers. Specifically, rural settlers in the richest 20% are 28.0 times more financially resilient compared to their counterparts in the poorest 20%.

Table 28: Effect of digital financial inclusion on financial resilience across Gender and location in the EAP region

	(1)	(2)	(3)	(4)	(5)
		Gender		Location	
	Full	Male	Female	Urban	Rural
VARIABLES	ME	ME	ME	ME	ME
DFI	0.017***	0.016***	0.033***	0.025***	0.076**
	(0.001)	(0.003)	(0.003)	(0.002)	(0.003)
Female (ref=male)	-0.069***			-0.054***	-0.066***
	(0.003)			(0.011)	(0.015)
Age	0.001*	0.008**	0.004	0.007***	0.003
	(0.001)	(0.004)	(0.002)	(0.002)	(0.002)
Age squared	0.000***	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education (ref=basic)					
Secondary	0.041***	0.003	0.017	0.025	0.016
	(0.004)	(0.026)	(0.019)	(0.016)	(0.019)
Tertiary	0.126***	0.087**	0.016***	0.137***	0.017***
	(0.006)	(0.039)	(0.001)	(0.019)	(0.001)
Employed	0.013***	0.004***	0.010***	0.019***	0.016***
	(0.002)	(0.001)	(0.000)	(0.001)	(0.000)
Rural (ref=urban)	0.037***	0.010	-0.002		
	(0.005)	(0.024)	(0.017)		
Wealth (ref=Poorest 20%					
Second 20%	0.090***	0.013	0.028	0.064***	0.051***
	(0.005)	(0.026)	(0.018)	(0.017)	(0.017)
Middle 20%	0.143***	0.091***	0.072***	0.117***	0.089***
	(0.005)	(0.028)	(0.021)	(0.018)	(0.020)
Fourth 20%	0.274***	0.158***	0.098***	0.207***	0.111***
	(0.006)	(0.029)	(0.023)	(0.018)	(0.022)
Richest 20%	0.020**	0.282***	0.242***	0.310***	0.280***
	(0.008)	(0.030)	(0.031)	(0.019)	(0.031)
Population	0.085***	-0.013	0.003	0.007	-0.005
	(0.009)	(0.012)	(0.018)	(0.031)	(0.011)
GDP	0.083***	0.006	0.039*	0.079**	0.013
	(0.030)	(0.017)	(0.023)	(0.031)	(0.026)
Observations	12,827	2,191	3,157	10,483	2,344

Source: Authors' computation (2024)

Gender and location heterogeneities in the link between DFI and financial resilience in the ECA region

Table 29 presents result for the effect of DFI on financial resilience along gender and locational dimensions in the ECA region. Likewise, in the EAP region, Table 29 indicates that DFI promotes financial resilience among both males and females in the ECA region, but its effect is greater for females compared to males. Precisely, DFI increases financial resilience by 1.1 percentage points among males and 6.2 percentage points among females and the differential magnitude of 5.1 percentage points in favour of females is statistically significant at a one percent alpha level. What this means is that the positive effect of DFI on financial resilience in the ECA region is much more intense among females relative to males.

Regarding control variables like age, Table 29 shows that the relationship between age and financial resilience is nonlinear in the ECA region. While younger females are more financially resilient than older females, there is no evidence that age is linked to financial resilience among males in the ECA region. Along with location dimensions, Table 29 indicates that there is no evidence that age is linked to financial resilience in the ECA region relative to the EAP region.

Regarding education, Table 29 shows that, in contrast to the EAP region where the positive effect of education on financial resilience is much more intense among males compared to females, in the ECA region, the positive effect of education on financial resilience is much more intense among females compared to males. Precisely, males with tertiary education are 6.8 times more financially resilient compared to their counterparts with basic education.

However, this effect is much greater among females. Specifically, females with tertiary education are 11.7 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education is relevant in enhancing people's financial resilience with a much higher effect among females compared to males in the region.

Along location dimension, Table 29 shows that, in the ECA region, education generally has a significant positive effect on financial resilience among both rural and urban settlers, but its effect is much more intense among urban settlers compared to rural settlers. Precisely, urban settlers with tertiary education are 14.5 times more financially resilient compared to their counterparts with basic education, in the region. However, this effect is lower among rural settlers. Specifically, rural settlers with tertiary education are 5.2 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education stimulates both urban and rural settlers' financial resilience with a much higher effect among urban settlers compared to rural settlers.

In terms of employment, Table 29 shows that, in the ECA region, employment has a significant positive effect on financial resilience among both males and females but unlike the EAP region, its effect is much more intense among females compared to males in the ECA region. Precisely, males with employment are 1.9 times more financially resilient compared to their counterparts without employment, in the ECA region. However, this effect is greater among females in the region. Specifically, females with employment are

2.3 times more financially resilient compared to their counterparts without employment. These effects are statistically significant at a five percent alpha level, hence, implying that employment enhances people's financial resilience with a much higher effect among females compared to males.

Along location dimension, Table 29 shows that, in the ECA region, employment has a significant positive effect on financial resilience among both urban and rural settlers, but unlike the EAP region, its effect is much more intense among rural settlers compared to the urban settlers. Precisely, urban settlers with employment are 0.6 times more financially resilient compared to their counterparts without employment. However, this effect is greater among rural settlers. Specifically, rural settlers with employment are 2.1 times more financially resilient compared to their counterparts without employment, these effects are statistically significant at a five percent alpha level, hence, implying that employment is key in promoting financial resilience in the ECA region with a much higher effect among rural settlers compared to their urban equals.

Regarding wealth and resilience, Table 29 shows that wealth increases financial resilience among males and females in the ECA region, and likewise the EAP region, its effect is much pronounced among males compared to females. Specifically, males in the richest 20% are 27.0 times more financially resilient compared to their counterparts in the poorest 20%. But this effect is lower among females. Specifically, females in the richest 20% are 18.7 times more financially resilient compared to their counterparts in the poorest 20%.

Finally, Table 29 shows that wealth increases financial resilience among urban and rural settlers in the ECA region and like the EAP region, its effect is much more pronounced among urban settlers compared to rural. Specifically,

urban settlers in the richest 20% are 28.8 times more financially resilient compared to their counterparts in the poorest 20%. However, this effect is lower among rural settlers. Specifically, rural settlers in the richest 20% are 18.6 times more financially resilient compared to their counterparts in the poorest 20%.

Table 29: Effect of digital financial inclusion on financial resilience across Gender and location in the ECA region

	(1)	(2)	(3)	(4)	(5)
		Gender		Location	
	Full	Male	Female	Urban	Rural
VARIABLES	ME	ME	ME	ME	ME
DFI	0.014***	0.011***	0.062***	0.014***	0.045**
	(0.001)	(0.003)	(0.002)	(0.001)	(0.003)
Female (ref=male)	-0.077***			-0.078***	-0.046***
	(0.005)			(0.005)	(0.017)
Age	0.001	-0.000	-0.004**	0.001	0.001
	(0.001)	(0.003)	(0.002)	(0.001)	(0.002)
Age squared	0.000**	0.000	0.001**	0.000**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education (ref=basic)					
Secondary	0.071***	0.006	0.040**	0.071***	0.032
	(0.010)	(0.025)	(0.017)	(0.011)	(0.022)
Tertiary	0.144***	0.068**	0.117***	0.145***	0.053***
	(0.011)	(0.030)	(0.022)	(0.011)	(0.002)
Employed	0.003	0.019**	0.023**	0.006**	0.021**
	(0.006)	(0.001)	(0.004)	(0.001)	(0.008)
Rural (ref=urban)		-0.048***	-0.044***		
		(0.018)	(0.014)		
Wealth (ref=Poorest 20%					
Second 20%	0.048***	-0.003	0.027	0.050***	0.007
	(0.009)	(0.027)	(0.019)	(0.009)	(0.023)
Middle 20%	0.116***	0.014	0.042**	0.123***	0.016
	(0.009)	(0.027)	(0.019)	(0.009)	(0.023)
Fourth 20%	0.174***	0.098***	0.070***	0.177***	0.083***
	(0.009)	(0.027)	(0.019)	(0.009)	(0.025)
Richest 20%	0.287***	0.270***	0.187***	0.288***	0.186***
	(0.009)	(0.028)	(0.021)	(0.009)	(0.028)
Population	-0.018	-0.027	-0.025	-0.019	-0.019
	(0.014)	(0.026)	(0.021)	(0.014)	(0.022)
GDP	0.123***	0.093***	0.041	0.117***	0.052*
	(0.017)	(0.035)	(0.028)	(0.017)	(0.030)
Observations	40,333	2,978	4,745	37,763	2,570

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

Gender and location heterogeneities in the link between DFI and financial resilience in the LAC region

Table 30 presents result for the effect of DFI on financial resilience along gender and locational dimensions in the LAC region. Like the EAP and ECA regions, Table 30 indicates that DFI increases financial resilience among both males and females in the LAC region, but its effect is greater for females compared to males. Precisely, DFI increases financial resilience by 1.3 percentage points among males and 1.4 percentage points among females and the differential magnitude of 0.4 percentage points in favour of females is statistically significant at a one percent alpha level. What this means is that the positive effect of DFI on financial resilience in the LAC region is much more intense among females relative to males.

Regarding control variables like age, Table 30 shows that the relationship between age and financial resilience is generally positive in the LAC region but not statistically significant. Along with location dimensions, Table 30 indicates that there is no evidence that age is positively linked to financial resilience in the LAC region and the effect is statistically significant among urban dwellers. However, there is no evidence that age has a positive effect on financial resilience among rural dwellers.

Regarding education, Table 30 shows that education generally increases financial resilience in the LAC region, but the effects vary according to the level of education between males and females. In contrast to the EAP region where the positive effect of education on financial resilience is much more intense among males compared to females across all levels of education, in the LAC region, the positive effect of education on financial resilience is much more

intense among females compared to males at the secondary education level. Precisely, females with secondary education are 3.0 times more financially resilient compared to their counterparts with basic education and this effect is also higher compared to their male counterparts with the same level of secondary education. However, at the tertiary level, the positive effect of education on financial resilience is greater among males compared to females. Specifically, females with tertiary education are 9.7 times more financially resilient compared to their counterparts with basic education. However, males with the same tertiary education are 9.8 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education is relevant in enhancing people's financial resilience, but the effect difference depends on the level of education and the gender of the individual.

Along location dimension, Table 30 shows that, in the LAC region, education generally has a significant positive effect on financial resilience among both rural and urban settlers, but its effect is much more intense among urban settlers compared to rural settlers. Precisely, urban settlers with tertiary education are 15.0 times more financially resilient compared to their counterparts with basic education, in the region. However, this effect is lower among rural settlers. Specifically, rural settlers with tertiary education are 5.5 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education stimulates both urban and rural settlers' financial resilience with a much higher effect among urban settlers compared to rural settlers.

Table 30: Effect of digital financial inclusion on financial resilience across Gender and location in the LAC region

VARIABLES	(1)	(2)	(3)	(4)	(5)
		Gender		Location	
	Full	Male	Female	Urban	Rural
	ME	ME	ME	ME	ME
DFI	0.016***	0.013***	0.014***	0.018***	0.011***
	(0.001)	(0.003)	(0.002)	(0.001)	(0.001)
Gender	-0.109***			-0.068***	-0.038***
	(0.008)			(0.004)	(0.006)
Age	0.000	-0.002	-0.002	0.001**	0.000
	(0.001)	(0.003)	(0.002)	(0.001)	(0.001)
Age squared	0.000**	0.000**	0.000**	0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education (ref=basic)					
Secondary	0.016	0.024	0.030**	0.060***	0.007
	(0.010)	(0.022)	(0.014)	(0.006)	(0.006)
Tertiary	0.079***	0.098***	0.097***	0.150***	0.055***
	(0.014)	(0.033)	(0.022)	(0.007)	(0.013)
Employed	0.018*	0.024***	0.023**	0.002*	0.016**
	(0.010)	(0.002)	(0.003)	(0.000)	(0.000)
Rural (ref=urban)		-0.025	0.021		
		(0.020)	(0.013)		
Wealth (ref=Poorest 20%					
Second 20%	0.014	0.033	0.017	0.044***	0.022***
	(0.012)	(0.030)	(0.017)	(0.007)	(0.008)
Middle 20%	0.065***	0.110***	0.055***	0.111***	0.029***
	(0.012)	(0.030)	(0.017)	(0.007)	(0.008)
Fourth 20%	0.096***	0.140***	0.084***	0.169***	0.068***
	(0.012)	(0.028)	(0.018)	(0.007)	(0.009)
Richest 20%	0.224***	0.275***	0.157***	0.297***	0.169***
	(0.014)	(0.029)	(0.020)	(0.007)	(0.011)
Population	-0.027***	-0.027	-0.037**	-0.021**	-0.018***
	(0.010)	(0.031)	(0.018)	(0.009)	(0.007)
GDP	-0.065***	-0.046	-0.066***	0.091***	0.017
	(0.018)	(0.034)	(0.019)	(0.009)	(0.011)
Observations	13,002	2,888	4,652	75,442	18,540

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

In terms of employment, Table 30 shows that like the EAP and ECA regions, employment has a significant positive effect on financial resilience among both males and females in the LAC region, and the effect is more intense among males compared to females. Precisely, males with employment are 2.4 times more financially resilient compared to their counterparts without employment, in the LAC region. However, this effect is lower among females in the region. Specifically, females with employment are 2.3 times more financially resilient compared to their counterparts without employment, these effects are statistically significant at a five percent alpha level, hence, implying that employment enhances people's financial resilience with a much higher effect among males compared to females.

Along location dimension, Table 30 shows that, in the LAC region, employment has a significant positive effect on financial resilience among both urban and rural settlers, but unlike the ECA region, its effect is much more intense among rural settlers compared to the urban settlers. Precisely, urban settlers with employment are 0.2 times more financially resilient compared to their counterparts without employment. However, this effect is greater among rural settlers. Specifically, rural settlers with employment are 1.6 times more financially resilient compared to their counterparts without employment, these effects are statistically significant at a five percent alpha level, hence, implying that employment is key in promoting financial resilience in the LAC region with a much higher effect among rural settlers compared to their urban equals.

Regarding wealth and resilience, Table 30 shows that wealth increases financial resilience among males and females in the LAC region, and likewise the EAP and ECA regions, its effect is much more pronounced among males compared

to females. Specifically, males in the richest 20% are 27.5 times more financially resilient compared to their counterparts in the poorest 20%. But this effect is lower among females. Specifically, females in the richest 20% are 15.7 times more financially resilient compared to their counterparts in the poorest 20%.

Finally, Table 30 shows that wealth increases financial resilience among urban and rural settlers in the LAC region and like the EAP and ECA regions, its effect is much more pronounced among urban settlers compared to rural. Specifically, urban settlers in the richest 20% are 29.7 times more financially resilient compared to their counterparts in the poorest 20%. However, this effect is lower among rural settlers. Specifically, rural settlers in the richest 20% are 16.9 times more financially resilient compared to their counterparts in the poorest 20%.

Gender and location heterogeneities in the link between DFI and financial resilience in the MENA region

Table 31 presents result for the effect of DFI on financial resilience along gender and locational dimensions in the MENA region. Table 31 indicates that DFI promotes financial resilience among both males and females in the MENA region, but unlike the EAP, ECA and LAC regions, its effect is greater for males compared to females in the MENA region. Precisely, DFI increases financial resilience by 2.4 percentage points among males and 2.2 percentage points among females and the differential magnitude of 0.2 percentage points in favour of males is statistically significant at a one percent alpha level. What this means is that the positive effect of DFI on financial resilience in the MENA region is much more intense among males relative to females.

Regarding control variables like age, Table 31 shows that the relationship between age and financial resilience is nonlinear in the MENA region. While younger males are less financially resilient than older males, there is no evidence that age is linked to financial resilience among females in the MENA region. Along with location dimensions, Table 31 indicates that older adults (age squared) in the urban areas are more financially resilient than the younger ones, but there is no evidence that age is linked to financial resilience in rural areas in the MENA region relative to other regions.

Regarding education, Table 31 shows that like the EAP region and in contrast to the ECA region where the positive effect of education on financial resilience is much more intense among females compared to males, in the MENA region, the positive effect of education on financial resilience is much intense among males compared to females. Precisely, males with tertiary education are 19.4 times more financially resilient compared to their counterparts with basic education. However, this effect is much lesser among females. Specifically, females with tertiary education are 8.8 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education is relevant in enhancing people's financial resilience with a much higher effect among males compared to females in the region.

Along the location dimension, Table 31 shows that, in the MENA region, education generally has a significant positive effect on financial resilience among both rural and urban settlers, but its effect is much more intense among urban settlers compared to rural settlers. Precisely, urban settlers with tertiary education are 16.8 times more financially resilient compared to

their counterparts with basic education, in the region. However, this effect is lower among rural settlers. Specifically, rural settlers with tertiary education are 6.4 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education stimulates both urban and rural settlers' financial resilience with a much higher effect among urban settlers compared to rural settlers.

In terms of employment, Table 31 shows that, in the MENA region, employment has a significant positive effect on financial resilience among both males and females and like the EAP region and in contrast to other regions, its effect is much more intense among males compared to females in the MENA region. Precisely, males with employment are 6.0 times more financially resilient compared to their counterparts without employment, in the MENA region. However, this effect is lower among females in the region. Specifically, females with employment are 1.8 times more financially resilient compared to their counterparts without employment. These effects are statistically significant at a five percent alpha level, hence, implying that employment enhances people's financial resilience with a much higher effect among males compared to females.

Along location dimension, Table 31 shows that, in the MENA region, employment has a significant positive effect on financial resilience among both urban and rural settlers, but unlike the EAP region, its effect is much more intense among rural settlers compared to the urban settlers. Precisely, urban settlers with employment are 1.4 times more financially resilient compared to their counterparts without employment. However, this effect is greater among

rural settlers. Specifically, rural settlers with employment are 3.1 times more financially resilient compared to their counterparts without employment, these effects are statistically significant at a five percent alpha level, hence, implying that employment is key in promoting financial resilience in the MENA region with a much higher effect among rural settlers compared to their urban equals.

Table 31: Effect of digital financial inclusion on financial resilience across Gender and location in the MENA region

	(1)	(2)	(3)	(4)	(5)
		Gender		Location	
	Full	Male	Female	Urban	Rural
VARIABLES	ME	ME	ME	ME	ME
DFI	0.021***	0.024***	0.022***	0.020***	0.032***
	(0.002)	(0.004)	(0.005)	(0.002)	(0.010)
Female (ref=male)	-0.051***			-0.052***	-0.024
	(0.010)			(0.010)	(0.046)
Age	-0.001	-0.002	-0.001	-0.001	-0.013**
	(0.002)	(0.003)	(0.003)	(0.002)	(0.006)
Age squared	0.001**	0.001**	0.000	0.001**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education (ref=basic)					
Secondary	0.066***	0.034	0.024	0.075***	0.067
	(0.013)	(0.027)	(0.026)	(0.013)	(0.048)
Tertiary	0.160***	0.194***	0.088**	0.168***	0.064
	(0.016)	(0.036)	(0.035)	(0.016)	(0.079)
Employed	0.013**	0.060**	0.018**	0.014**	0.031**
	(0.001)	(0.027)	(0.005)	(0.001)	(0.001)
Rural (ref=urban)		0.037	0.013		
		(0.033)	(0.032)		
Wealth (ref=Poorest 20%					
Second 20%	0.036***	0.078**	0.042*	0.032**	0.104**
	(0.014)	(0.032)	(0.025)	(0.014)	(0.051)
Middle 20%	0.112***	0.126***	0.178***	0.110***	0.111**
	(0.014)	(0.031)	(0.030)	(0.015)	(0.051)
Fourth 20%	0.171***	0.179***	0.236***	0.166***	0.236***
	(0.015)	(0.032)	(0.031)	(0.015)	(0.056)
Richest 20%	0.347***	0.374***	0.386***	0.342***	0.398***
	(0.015)	(0.032)	(0.033)	(0.015)	(0.060)
Population	-0.050***	-0.064***	-0.087***	-0.047***	-0.127***
	(0.012)	(0.022)	(0.023)	(0.012)	(0.021)
GDP	0.010	0.013	0.012	0.013	-0.042
	(0.017)	(0.027)	(0.029)	(0.017)	(0.049)
Observations	11,680	2,226	2,164	11,147	533

Source: Authors' computation (2024)

Regarding wealth and resilience, Table 31 shows that wealth increases financial resilience among males and females in the MENA region, and in contrast to the EAP, ECA and LAC regions, its effect is much more pronounced among females compared to males. Specifically, males in the richest 20 percent are 37.4 times more financially resilient compared to their counterparts in the poorest 20 percent. But this effect is greater among females. Specifically, females in the richest 20 percent are 38.6 times more financially resilient compared to their counterparts in the poorest 20 percent.

Finally, Table 31 shows that wealth increases financial resilience among urban and rural settlers in the MENA region and in contrast to the EAP and ECA regions, its effect is much more pronounced among rural settlers compared to urban settlers. Specifically, urban settlers in the richest 20 percent are 34.2 times more financially resilient compared to their counterparts in the poorest 20%. However, this effect is greater among rural settlers. Specifically, rural settlers in the richest 20 percent are 39.8 times more financially resilient compared to their counterparts in the poorest 20 percent.

Gender and location heterogeneities in the link between DFI and financial resilience in the SA region

Table 32 presents result for the effect of DFI on financial resilience along gender and locational dimensions in the SA region. Likewise, the EAP, ECA, LAC and MENA regions, Table 32 indicates that DFI increases financial resilience among both males and females in the SA region, but its effect is greater for males compared to females. Precisely, DFI increases financial resilience by 0.6 percentage points among males and 0.4 percentage points among females. What this means is that the positive effect of DFI on financial

resilience in the SA region is much more intense among males relative to females.

Regarding control variables like age, Table 32 shows that the relationship between age and financial resilience is nonlinear in the SA region. While older females (age squared) are more financially resilient than younger females, there is no evidence that age is linked to financial resilience among males in the SA region. Along location dimensions, Table 32 indicates that older adults in both urban and rural areas in the SA region are more financially resilient than younger ones, but the effect is intense in rural areas compared to urban areas.

Regarding education, Table 32 shows that like the EAP and LAC region, the positive effect of education on financial resilience is much more intense among males compared to females in the SA region. Precisely, males with tertiary education are 6.3 times more financially resilient compared to their counterparts with basic education. However, this effect is much lower among females. Specifically, females with tertiary education are 2.4 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education is relevant in enhancing an individual's financial resilience with a much higher effect among males compared to females in the region.

Along location dimension, Table 32 shows that, in the SA region, education has a significant positive effect on financial resilience among both rural and urban settlers, but its effect is much more intense among rural settlers compared to urban settlers. Precisely, urban settlers with tertiary education are 6.0 times more financially resilient compared to their counterparts with basic

education, in the region. However, this effect is greater among rural settlers. Specifically, rural settlers with tertiary education are 13.0 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education stimulates both urban and rural settlers' financial resilience with a much higher effect among rural settlers compared to urban settlers.

In terms of employment, Table 32 shows that, in the SA region, employment has a significant positive effect on financial resilience among both males and females, but its effect is much more intense among males compared to females in the SA region. Precisely, males with employment are 2.6 times more financially resilient compared to their counterparts without employment, in the SA region. However, this effect is lower among females in the region. Specifically, females with employment are 1.5 times more financially resilient compared to their counterparts without employment. These effects are statistically significant at a five percent alpha level, hence, implying that employment enhances people's financial resilience with a much higher effect among females compared to males.

Along location dimension, Table 32 shows that, in the SA region, employment has a significant positive effect on financial resilience among both urban and rural settlers, but its effect is much more intense among urban settlers compared to the rural settlers. Precisely, urban settlers with employment are 1.5 times more financially resilient compared to their counterparts without employment. However, this effect is lower among rural settlers. Specifically, rural settlers with employment are 1.2 times more financially resilient compared to their counterparts without employment, these effects are statistically

significant at a five percent alpha level, hence, implying that employment is key in promoting financial resilience in the SA region with a much higher effect among rural settlers compared to their urban equals.

Table 32: Effect of digital financial inclusion on financial resilience across Gender and location in the SA region

	(1)	(2)	(3)	(4)	(5)
		Gender		Location	
	Full	Male	Female	Urban	Rural
VARIABLES	ME	ME	ME	ME	ME
DFI	0.007***	0.006***	0.004**	0.017***	0.007**
	(0.001)	(0.002)	(0.002)	(0.001)	(0.003)
Female (ref=male)	-0.031***			-0.120***	-0.064***
	(0.009)			(0.009)	(0.018)
Age	-0.002	0.002	-0.003**	-0.001	-0.002
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Age squared	0.001*	0.000	0.001**	0.001*	0.002**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education (ref=basic)					
Secondary	0.005	0.003	0.001	0.004	0.038*
	(0.008)	(0.012)	(0.010)	(0.012)	(0.020)
Tertiary	0.051***	0.063***	0.024***	0.060***	0.130***
	(0.017)	(0.024)	(0.002)	(0.016)	(0.035)
Employed	0.009	0.026***	0.015***	0.015**	0.012**
	(0.008)	(0.003)	(0.001)	(0.000)	(0.000)
Rural (ref=urban)		-0.013	-0.004		
		(0.011)	(0.010)		
Wealth(ref=Poorest 20%					
Second 20%	0.016*	0.004	0.013	0.013	0.011
	(0.010)	(0.014)	(0.011)	(0.014)	(0.023)
Middle 20%	0.028***	0.026*	0.025**	0.063***	0.068***
	(0.010)	(0.015)	(0.012)	(0.014)	(0.025)
Fourth 20%	0.058***	0.063***	0.050***	0.096***	0.099***
	(0.013)	(0.018)	(0.015)	(0.013)	(0.027)
Richest 20%	0.150***	0.161***	0.127***	0.228***	0.233***
	(0.021)	(0.026)	(0.023)	(0.015)	(0.030)
Population	-0.012	-0.043**	-0.024*	-0.030***	-0.014
	(0.010)	(0.018)	(0.012)	(0.009)	(0.027)
GDP	-0.000	0.104	0.071	-0.066***	-0.049*
	(0.024)	(0.066)	(0.046)	(0.018)	(0.029)
Observations	6,797	3,067	2,846	10,595	2,407

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

Regarding wealth and resilience, Table 32 shows that wealth increases financial resilience among males and females in the SA region, and likewise the EAP and MENA regions, its effect is much more pronounced among males compared to females. Specifically, males in the richest 20 percent are 16.1 times

more financially resilient compared to their counterparts in the poorest 20 percent. But females in the richest 20 percent are 12.7 times more financially resilient compared to their counterparts in the poorest 20 percent.

Finally, Table 32 shows that wealth increases financial resilience among urban and rural settlers in the SA region and in contrast to the EAP, MENA and LAC regions, its effect is much more pronounced among rural settlers compared to urban settlers. Specifically, urban settlers in the richest 20 percent are 22.8 times more financially resilient compared to their counterparts in the poorest 20%. However, rural settlers in the richest 20 percent are 23.3 times more financially resilient compared to their counterparts in the poorest 20 percent.

Gender and location heterogeneities in the link between DFI and financial resilience in the SSA region

Table 33 presents result for the effect of DFI on financial resilience along gender and locational dimensions in the SSA region. Table 33 indicates that DFI stimulates financial resilience among both males and females in the SSA region, but in contrast to other regions, its effect is greater for males compared to females. Precisely, DFI increases financial resilience by 1.9 percentage points among males and 1.5 percentage points among females and the differential magnitude of 0.4 percentage points in favour of males is statistically significant at a one percent alpha level. What this means is that the positive effect of DFI on financial resilience in the SSA region is much more intense among males relative to females.

Regarding control variables like age, Table 33 shows that the relationship between age and financial resilience is positive in the SSA region. Age increases financial resilience by 2.9 percentage points among males but,

there is no evidence that age is linked to financial resilience among females in the SSA region. Along with location dimensions, Table 33 indicates that there is no evidence that age is linked to financial resilience in the SSA region relative to the EAP region.

Regarding education, Table 33 shows that, in contrast to the EAP region where the positive effect of education on financial resilience is much more intense among males compared to females, in the SSA region, the positive effect of education on financial resilience is much more intense among males compared to females. Precisely, males with tertiary education are 16.6 times more financially resilient compared to their counterparts with basic education. However, females with tertiary education are 13.3 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying that education is relevant in enhancing people's financial resilience with a much higher effect among males compared to females in the region.

Along location dimension, Table 33 shows that, in the SSA region, education has a significant positive effect on financial resilience among both rural and urban settlers, but its effect is much more intense among urban settlers compared to rural settlers. Precisely, urban settlers with tertiary education are 16.2 times more financially resilient compared to their counterparts with basic education, in the region. However, this effect is lower among rural settlers. Specifically, rural settlers with tertiary education are 11.6 times more financially resilient compared to their counterparts with basic education. These effects are statistically significant at a one percent alpha level, hence, implying

that education stimulates both urban and rural settlers' financial resilience with a much higher effect among urban settlers compared to rural settlers.

Table 33: Effect of digital financial inclusion on financial resilience across Gender and location in the SSA region

	Full	Gender		Location	
VARIABLES		Male	Female	Urban	Rural
DFI	0.037***	0.019***	0.015***	0.019***	0.025***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)
Female (ref=male)	-0.028***			-0.030***	-0.030***
	(0.004)			(0.008)	(0.007)
Age	0.029***	0.004***	0.000	0.001	0.000
	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)
Age squared	0.001	0.001	0.001	0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Education (ref=basic)					
Secondary	0.010**	0.026***	0.025***	0.048***	0.003
	(0.000)	(0.010)	(0.009)	(0.010)	(0.008)
Tertiary	0.028***	0.166***	0.133***	0.162***	0.116***
	(0.006)	(0.023)	(0.027)	(0.019)	(0.028)
Employed	0.143***	0.211***	0.123***	0.033***	0.024***
	(0.016)	(0.002)	(0.008)	(0.001)	(0.009)
Rural (ref=urban)	-0.003	-0.015	-0.013		
	(0.009)	(0.009)	(0.008)		
Wealth (ref=Poorest 20%					
Second 20%	(0.007)	0.010	0.017	0.028*	0.011
		(0.015)	(0.011)	(0.014)	(0.011)
Middle 20%	0.018**	0.024*	0.016	0.054***	0.011
	(0.009)	(0.014)	(0.011)	(0.014)	(0.011)
Fourth 20%	0.030***	0.051***	0.046***	0.078***	0.041***
	(0.009)	(0.014)	(0.011)	(0.014)	(0.011)
Richest 20%	0.059***	0.150***	0.121***	0.180***	0.118***
	(0.009)	(0.015)	(0.013)	(0.015)	(0.013)
Population	0.154***	0.012	0.010	-0.005	0.013
	(0.010)	(0.013)	(0.012)	(0.014)	(0.009)
GDP	-0.002	-0.032*	-0.029	-0.019	-0.011
	(0.010)	(0.019)	(0.018)	(0.019)	(0.014)
Observations	20,489	9,076	9,572	10,582	9,907

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

In terms of employment, Table 33 shows that, in the SSA region, employment has a significant positive effect on financial resilience among both males and females, but its effect is much more intense among males compared to females in the SSA region. Precisely, males with employment are 21.1 times more financially resilient compared to their counterparts without employment, in the SSA region. However, females with employment are 12.3 times more financially resilient compared to their counterparts without employment. These effects are statistically significant at a five percent alpha level, hence, implying that employment enhances people's financial resilience with a much higher effect among females compared to males.

Along location dimension, Table 33 shows that, in the SSA region, employment has a significant positive effect on financial resilience among both urban and rural settlers, but unlike the EAP region, its effect is much more intense among urban settlers compared to the rural settlers. Precisely, urban settlers with employment are 3.3 times more financially resilient compared to their counterparts without employment. However, rural settlers with employment are 2.4 times more financially resilient compared to their counterparts without employment, these effects are statistically significant at a five percent alpha level, hence, implying that employment is key in promoting financial resilience in the SSA region with a much higher effect among rural settlers compared to their urban equals.

Regarding wealth and resilience, Table 33 shows that wealth increases financial resilience among males and females in the SSA region, and likewise the EAP region, its effect is much pronounced among males compared to females. Specifically, males in the richest 20 percent are 15.0 times more

financially resilient compared to their counterparts in the poorest 20 percent. But this effect is lower among females. Specifically, females in the richest 20 percent are 12.1 times more financially resilient compared to their counterparts in the poorest 20 percent.

Finally, Table 33 shows that wealth increases financial resilience among urban and rural settlers in the SSA region, but its effect is much more pronounced among urban settlers compared to rural. Specifically, urban settlers in the richest 20% are 18.0 times more financially resilient compared to their counterparts in the poorest 20 percent. However, this effect is lower among rural settlers. Specifically, rural settlers in the richest 20 percent are 11.8 times more financially resilient compared to their counterparts in the poorest 20 percent.

Robustness checks

Here, the study explores the effect of digital financial inclusion on financial resilience using alternative measurements and estimation strategies. Using the DFI index generated based on the MCA approach, the study re-estimated the models linking DFI to financial resilience and the results are presented in Table 34. As shown in Table 34, results from this robustness check are entirely consistent with the baseline result. That is DFI has significant positive effect on financial resilience both at the global level and across the regions.

Next, Table 34 presents results on the effect of DFI on financial resilience using the Lewbel, (2012) two-stage least squares (2SLS) as an alternative estimation strategy to the multilevel probit model. The advantage of the Lewbel, (2012) 2SLS approach is that it addresses any concerns over the potential endogeneity in the link between DFI and financial resilience using

internally generated instruments. The method has been widely applied in the literature to check the robustness of results in estimations addressing endogeneity (Bukari et al., 2021; Churchill & Marisetty, 2020). As shown in Table 34, results from this robustness check are consistent with the baseline results. Precisely, the results presented in Table 34 further confirmed the baseline results that DFI increases financial resilience. As a final check, I used the stricter measure of financial resilience which takes a value of 1 the individual is classified as financially resilient if he/she can come up with $3000 within the next seven days in case of emergency and 0 otherwise. As shown in Table 35, results from this final step also support the baseline estimates, that is, DFI increases financial resilience at both the global level and across regions.

Table 34: Alternative measure of digital inclusion (Regional comparison)

	(1)	(3)	(4)	(5)	(6)	(7)	(8)
	Global	EAP	ECA	LAC	MENA	SA	SSA
VARIABLES	ME	ME	ME	ME	ME	ME	ME
DFI	0.052***	0.027	0.029***	0.054***	0.091***	0.072***	0.064***
	(0.004)	(0.017)	(0.011)	(0.012)	(0.017)	(0.009)	(0.007)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	105,128	12,827	40,333	13,002	11,680	6,797	20,489
Number of groups	117	14	44	16	13	6	24
Likelihood Ratio Test	5541.330***	936.94 0***	221.28***	72.25***	70.53***	76.66***	271.55***

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

Table 35: Alternative estimation for Digital Financial inclusion on financial resilience (Lewbel 2SLS estimates)

VARIABLES	(1) Global ME	(2) EAP ME	(3) ECA ME	(4) LAC ME	(5) MENA ME	(6) SA ME	(7) SSA ME
Panel A: DFI (continuous)	0.010***	0.010***	0.002	0.011***	0.017***	0.010***	0.012***
	(0.001)	(0.003)	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)
Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-3.465	-17.959***	-6.183***	-0.252	0.171	1.857***	-1.603
	(2.945)	(1.655)	(0.710)	(0.471)	(0.281)	(0.170)	(3.574)
Observations	113,683	16,369	40,558	14,098	11,707	6,805	21,265
R-squared	0.276	0.327	0.213	0.151	0.188	0.093	0.108
Panel B: DFI (Dummy)	0.048***	0.011	0.013***	0.015	0.094***	0.017***	0.022**
	(0.004)	(0.014)	(0.009)	(0.019)	(0.017)	(0.006)	(0.003)
Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-2.768	-22.253***	-6.049***	-1.467***	0.134	1.851***	-0.841
	(2.956)	(1.458)	(0.686)	(0.461)	(0.281)	(0.171)	(3.596)
Observations	113,683	16,369	40,558	14,098	11,707	6,805	21,265
R-squared	0.270	0.316	0.212	0.138	0.183	0.080	0.097

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

Table 36: Alternative measurement strategy for digital financial inclusion (DFI) on financial resilience

	(1) Global	(2) EAP	(3) ECA	(4) LAC	(5) MENA	(6) SA	(7) SSA
VARIABLES	ME	ME	ME	ME	ME	ME	ME
Panel A: DFI (continuous)	0.015***	0.012***	0.014***	0.021***	0.025***	0.014***	0.022***
	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Variance (country)	0.148***	0.139***	0.106***	0.023**	0.023**	0.057***	0.065***
	(0.020)	(0.054)	(0.023)	(0.010)	(0.010)	(0.035)	(0.020)
Constant	-3.260***	-5.378***	-3.222***	0.807	0.155	-0.362***	-0.929
	(0.515)	(1.552)	(0.705)	(0.784)	(0.876)	(0.006)	(1.025)
Observations	113,683	16,369	40,558	14,098	11,707	6,805	21,265
Number of groups	122	15	44	17	13	6	25
Likelihood Ratio Test	5996.34***	687.50***	1916.56***	66.41***	63.09***	70.04***	298.130***
Panel B: DFI (Dummy)	0.061***	0.030*	0.041***	0.050***	0.079***	0.043***	0.054***
	(0.005)	(0.017)	(0.010)	(0.008)	(0.011)	(0.007)	(0.006)
var(_cons[country])	0.148***	0.139***	0.106***	0.023**	0.023**	0.057***	0.065***
	(0.020)	(0.054)	(0.023)	(0.010)	(0.010)	(0.035)	(0.020)
Constant	-3.260***	-5.378***	-3.222***	0.807	0.155	-0.362***	-0.929
	(0.515)	(1.552)	(0.705)	(0.784)	(0.876)	(0.006)	(1.025)
Control?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	113,683	16,369	40,558	14,098	11,707	6,805	21,265
Number of groups (countries)	138	17	44	17	13	6	25
Likelihood Ratio Test	6456.400***	702.430***	2025.120***	128.590***	96.250***	71.90***	290.810***

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Authors' computation (2024)

Chapter Summary

This chapter examined the effect of digital financial inclusion (DFI) on financial resilience and further examined the gender and locational heterogeneities. Based on the findings, the chapter concludes that DFI increases financial resilience globally, although, its positive effect on financial resilience is more beneficial in deprived regions such as MENA, SA and SSA. By gender, DFI stimulates financial resilience in females more relative to males. By location, DFI has positive effect on financial resilience and the effect is more intense in rural compared to urban areas.

CHAPTER SEVEN

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter consist of the summary of the key findings from the three empirical chapters examined, their conclusions and key recommendations. The chapter begins by summarizing the findings. This is followed by the key conclusions and finally the recommendations.

Summary

This study covered three empirical chapters based on three objectives: (i) Examine the regional differences in the incidence of financial inclusion, (ii) Analyse factors causing gender and locational gaps in financial inclusion and (iii) Examine the effects of digital financial inclusion on financial resilience. The first, second and third empirical chapters address the first, second and third objectives respectively. The first empirical chapter uses the Global Findex Database (GFD) (2021) as its main datasets and employs the FGT methodology and the general dominance analysis as its main econometric techniques. The second empirical chapter also uses the same GFD (2021) as its main datasets but employs Blinder-Oaxaca Decomposition as its main estimation technique. The third empirical chapter uses the same GFD (2021) as its main datasets but employs multilevel probit model as its main econometric technique.

Regarding the first empirical chapter, three main findings emerged. First, overall, SA is the worst-performing region on the incidence of financial inclusion (60.50%), followed by MENA (62.94%) and SSA (63.37%). On the contrary, the ECA (89.1%) is the best-performing region concerning the incidence of financial inclusion as the EAP region (84.8%) matches up closely

in the second spot. Secondly, by gender, SA still has the highest incidence of financial inclusion gender gap of 12.1 percentage points higher than the global average of 7.6 percent, but the ECA has the lowest gender gap of approximately 5.0 percent. Finally, in terms of locational heterogeneities, while SSA appears to be doing better than MENA on the gender front, the reverse holds if the analysis is disaggregated by location where the SSA has a gap of 9.2 percent relative to MENA (8.8%).

Finally, globally, a family member already owns a financial account is the leading factor causing the unbanked, followed by lack of money/income as distance to financial institutions matches up closely in the third spot. However, this evidence varies across regions. Secondly, in regions like SA and ECA, the cost of financial services (too expensive) is the most important factor accounting for the low financial inclusion (unbanked), followed by trust in financial institutions and lack of income respectively. In the SA, SSA and MENA, religion is the leading factor accounting for the financial exclusion, followed by distance to financial institutions and lack of money/income.

Regarding the second empirical chapter, three main key findings can be deduced. The first finding is that globally, there is a gender gap of 8.1 percent in favour of men and a location gap of approximately 30.0 percent in favour of urban dwellers. Thus, adjusting females' endowments to be at par with their male counterparts will reduce the FI gender gap by 63.0 percent globally. Further, adjusting rural dweller endowments/opportunities to be at par with their urban counterparts will reduce the FI location gap by 46.6 percent worldwide. The three key factors for closing the gaps in each are as follows. Gender: Being employed, followed by having at least a primary education and living in a rural

area**.** Having at least a primary education, followed by belonging to age 15-25years

A second major finding from this chapter is that across all the six regions, the FI gender gaps are largely due to differences in the endowments or opportunities between males and females. In more specific terms, adjusting females' endowments or opportunities to be at par with that of their male counterparts will reduce the FI gender gap by 61.2 percent in EAP, 50.0 percent in ECA, 56.0 percent in LAC, 90.5 percent in MENA, 88.8 percent in SA and 65.2% in SSA. The three key factors for closing the gaps in each are as follows. In EAP: Living in a rural area, followed by being employed, and having a primary education. In ECA: Being employed, followed by living in a rural area and having a primary education. In LAC: Being employed, followed by having a degree and belonging to the richest 20 percent. In MENA: Being employed, followed by having a degree and belonging to age 15-25 years. In SA: Being employed, followed by having at least a secondary education and belonging to age 15-25 years. In SSA: Being employed, followed by having at least a primary education and belonging to the richest 20 percent.

The final major finding is that across all six regions, the FI location gaps are largely due to differences in the endowments or opportunities between urban and rural localities. Thus, adjusting rural people's endowments or opportunities to be at par with that of their urban counterparts will reduce the FI location gap by 62.5 percent in EAP, 83.3 percent in ECA, 76.6 percent in LAC, 63.0 percent in MENA, 63.9 percent in SA and 60.0 percent in SSA. Accordingly, the three key factors for closing the gaps in each are as follows. In EAP: having at least a primary education, being employed and belonging to the richest 20 percent.

In ECA: being employed, followed by living in a rural area and having a primary education. In LAC: having at least a secondary education, being employed and belonging to the richest 20 percent. In MENA: Having a degree, followed by being employed, and belonging to age 15-25 years. In SA: Having at least a secondary education, being employed, and belonging to age 59 years and above. In SSA: Having at least a primary education, belonging to the richest 20 percent and being employed.

The third chapter examined the effect of digital financial inclusion on financial resilience given the dependent variable was a binary outcome, a multilevel probit model was employed. Three major findings arose. First, Generally, digital financial inclusion improves financial resilience across all regions, however, its effect on financial resilience is more pronounced in deprived regions such as SA (8.7 % points), MENA (6.1 percentage points) and SSA (3.7% points). Secondly, by gender, the effect of digital financial inclusion on financial resilience is more beneficial to females (4.0 percentage points) than males (1.5 percentage points). This pattern holds uniformly across all six regions (i.e., EAP, ECA, LAC, MENA, SA and SSA). Finally, by location, the effect of digital financial inclusion on financial resilience is more intense in rural areas (5.0% points) compared to urban areas (1.5% points) and it holds uniformly across all the six regions except the LAC region.

Conclusions

About the first objective, there has been a significant improvement in the incidence of financial inclusion worldwide when the informal sector is incorporated into the conceptualisation of financial inclusion. However, progress in regions like SA, MENA and SSA remains undesirable. There are

significant financial inclusion gender and location gaps with women and those in rural areas largely disadvantaged. Family members who already own a financial account, lack of money/income and distance to financial institutions are the three most important factors accounting for unbanked or financial exclusion globally.

Concerning the second objective, worldwide, a significant proportion of the FI gender and location gaps are due to differences in endowment/opportunities with females and rural dwellers largely disadvantaged. Thus, improving women's and rural dwellers' endowments or opportunities to be at par with their men and urban counterparts will reduce over half percent of the FI gender and location gaps with much success in the financially deprived regions such as SA and SSA stand to benefit more. In SSA and SA regions, having at least a primary education, employment, and wealth are the major factors contributing to the gender and location gap. In the MENA region, being employed and having a degree are the major contributors to gender and location gaps in financial inclusion.

Regarding the third objective, although DFI increases financial resilience globally, its positive effect on financial resilience is more beneficial in deprived regions. By gender, DFI stimulates financial resilience in females more relative to males. By location, DFI has a positive effect on financial resilience and the effect is more intense in rural compared to urban areas.

Recommendations

Improving access to financial services through financial outreach and education programs to increases access to and use of financial services. Financial outreach and education programs should be intensified among gender

and location groups. More policy efforts are required to broaden the scope of financial inclusion. This can be achieved by rolling out a financial outreach program and education on the need to self-own accounts rather than relying on family members who already have an account.

Government financial assistance/aid to address lack of money or income as a major reason for the unbanked.

Government efforts to provide financial assistance to the rural folks and relief to the family dependants. In regions like SA and ECA, policy efforts should be targeted at reducing the cost of financial services (too expensive) and increasing trust in financial institutions alongside employment opportunities to mitigate the lack of income among consumers of financial services.

Decolonising religion as a major reason for the unbanked

In the SSA and MENA regions, special attention should be given to religion by decolonising believers on the need to participate in the financial market. Religious leaders should be brought on board in the fight against exclusion by incorporating into the preachings, the need for people to self-own accounts rather than relying on family members who already own accounts. Women and those in rural areas should be a priority in the fight.

Designing education intervention and proving employment opportunities to address issues of FI gender and location gaps

In SSA and SA regions, designing education intervention to ensure that females have at least a primary, creating more employment or economic empowerment opportunities for females and those in rural areas will reduce the FI gender and location gaps. In the MENA region, women and rural dwellers in the region should be encouraged or given incentives to obtain degrees.

Economic employment programmes can be rolled out for females and rural dwellers. In the EAP, ECA and LAC regions, promoting basic education and providing employment opportunities with much emphasis on females and those in the rural areas will narrow the existing FI gender and location gaps.

Education on adoption of digital financial services

Given that DFI improves financial resilience more in poor regions, it can be leveraged as a pro-poor tool to enhance resilience in poor regions. Financial education programmes aimed at increasing the scope of DFI adoption should be intensified among females. Therefore, digital financial inclusion strategies and outreach programmes should prioritise rural areas.

Areas for Future Research

The study did not investigate all the variables identified in the literature as determinants of financial resilience due to data limitations. For example, people's financial literacy and digital literacy are likely to influence their financial resilience, but the GFD did not collect this information. Thus, future studies should target the role of financial literacy and digital literacy on financial resilience whenever the data becomes available.

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APPENDICES

Table A1: Contributions of the factors to the endowments, coefficient and interactions part of the gender gap

	(1)	(2)	(3)	(5)	(6)	(7)
	Gender			Location		
VARIABLES	endowments	coefficients	interaction	endowments	coefficients	interaction
Female (ref=male)	0.003***	-0.006***	0.001***			
	(0.000)	(0.001)	(0.000)			
Rural (ref=urban)				0.001***	-0.002	0.000
				(0.000)	(0.003)	(0.000)
Agecat1	0.000	-0.012***	0.000	0.007***	-0.014***	0.004***
	(0.000)	(0.002)	(0.000)	(0.001)	(0.003)	(0.001)
Agecat2	-0.000	-0.008***	-0.000	-0.000	-0.017***	0.002***
	(0.000)	(0.002)	(0.000)	(0.000)	(0.003)	(0.000)
Agecat3	-0.000***	-0.008***	-0.000***	0.000***	-0.009***	-0.001***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.000)
Agecat4	0.000	-0.008***	-0.000**	0.000	0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Agecat5	-0.001***	-0.019***	0.001***	0.003***	0.007***	0.004***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)
primedu	0.006***	-0.007	0.001	0.017	-0.048**	0.031**
	(0.001)	(0.009)	(0.002)	(0.011)	(0.019)	(0.012)
seconedu	0.006***	-0.031**	-0.002**	0.024***	-0.025*	-0.008*
	(0.001)	(0.014)	(0.001)	(0.004)	(0.014)	(0.005)
tertedu	0.008***	-0.020***	-0.003***	0.076***	-0.007***	-0.028***
	(0.001)	(0.006)	(0.001)	(0.007)	(0.002)	(0.008)
inworkforc	-0.029***	-0.001	-0.000	-0.001***	-0.182***	0.003***

	(0.002)	(0.008)	(0.002)	(0.000)	(0.006)	(0.001)
outworkforc	0.054***	0.028***	-0.012***	0.000	-0.098***	0.005***
	(0.002)	(0.006)	(0.003)	(0.000)	(0.002)	(0.001)
wealth1	0.001***	0.004***	-0.001***	0.006***	0.017***	-0.005***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)
wealth2	0.000	0.006***	-0.001***	0.002***	0.008***	-0.002***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.000)
wealth3	-0.000	0.007***	-0.001***	0.001***	0.009***	-0.001***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.000)
wealth4	0.000**	0.008***	0.000***	0.000	0.003***	0.000***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)
wealth5	0.002***	0.010***	0.003***	0.004***	-0.002	-0.001
	(0.000)	(0.002)	(0.000)	(0.001)	(0.002)	(0.001)
Observations	143,420	143,420	143,420	143,420	143,420	143,420

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A 2: Contributions of the factors to the endowments, coefficients and interactions parts of the gender gap in EAP

	(1)	(2)	(3)	(5)	(6)	(7)
	Gender			Location		
VARIABLES	endowments	coefficients	interaction	endowments	coefficients	interaction
Female (ref=male)	0.011***	-0.004*	0.001*			
	(0.001)	(0.002)	(0.001)			
Rural (ref=urban)				0.003*	0.010	-0.002
				(0.002)	(0.011)	(0.002)
Agecat1	-0.002**	0.032***	0.002**	0.004**	0.025***	-0.002**
	(0.001)	(0.002)	(0.001)	(0.002)	(0.007)	(0.001)
Agecat2	0.001	0.039***	-0.001	0.001	0.014*	-0.001
	(0.001)	(0.004)	(0.001)	(0.001)	(0.008)	(0.001)
Agecat3	0.001**	0.033***	-0.002**	0.000	0.002	-0.000
	(0.001)	(0.003)	(0.001)	(0.000)	(0.006)	(0.000)
Agecat4	-0.000	0.023***	0.001	0.001	0.011**	-0.001
	(0.000)	(0.003)	(0.001)	(0.001)	(0.005)	(0.001)
Agecat5	0.000	0.026***	0.000	0.000	0.010***	0.004***
	(0.000)	(0.002)	(0.001)	(0.000)	(0.001)	(0.001)
primedu	0.006***	0.007	-0.001	-0.013	-0.108	0.075
	(0.002)	(0.017)	(0.003)	(0.049)	(0.073)	(0.051)
seconedu	0.001	-0.018	-0.001	0.053***	-0.111***	-0.049**
	(0.001)	(0.030)	(0.001)	(0.019)	(0.043)	(0.019)
tertedu	0.005***	-0.018	-0.002	0.148***	-0.030***	-0.121***
	(0.002)	(0.018)	(0.002)	(0.032)	(0.009)	(0.033)
inworkforc	-0.010***	0.003	0.000	0.012***	-0.038**	0.009**
	(0.001)	(0.007)	(0.001)	(0.004)	(0.016)	(0.004)
outworkforc	0.016***	-0.001	0.000	0.000	-0.038***	0.004***

	(0.002)	(0.005)	(0.002)	(0.000)	(0.002)	(0.001)
wealth1	0.000*	0.004**	-0.000*	0.009***	0.019***	-0.007***
	(0.000)	(0.002)	(0.000)	(0.003)	(0.007)	(0.003)
wealth2	0.000	0.002	-0.000	0.002*	0.011*	-0.002*
	(0.000)	(0.002)	(0.000)	(0.001)	(0.006)	(0.001)
wealth3	-0.000	-0.000	0.000	-0.000	0.004	0.000
	(0.000)	(0.003)	(0.000)	(0.000)	(0.006)	(0.000)
wealth4	-0.000	0.003	-0.000	0.000	0.002	0.000
	(0.000)	(0.003)	(0.000)	(0.000)	(0.001)	(0.000)
wealth5	0.001*	0.003	0.001	0.003	-0.003	-0.002
	(0.001)	(0.003)	(0.001)	(0.003)	(0.005)	(0.003)
Observations	19,424	19,424	19,424	19,424	19,424	19,424

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A3: Contributions of the factors to the endowments, coefficients and interactions parts of the gender gap in ECA

	(1)	(2)	(3)	(5)	(6)	(7)
	Gender			Location		
VARIABLES	endowments	coefficients	interaction	endowments	coefficients	interaction
Female (ref=male)	0.004***	-0.004***	0.001***			
	(0.001)	(0.001)	(0.000)			
Rural (ref=urban)				-0.001	-0.024**	0.003**
				(0.001)	(0.011)	(0.001)
Agecat1	0.000	-0.003***	-0.000***	0.000	0.002	-0.000
	(0.000)	(0.001)	(0.000)	(0.001)	(0.005)	(0.001)
Agecat2	0.000	-0.002	-0.000	0.000	0.006	-0.001
	(0.000)	(0.001)	(0.000)	(0.001)	(0.006)	(0.001)
Agecat3	0.001***	-0.005***	-0.000**	0.000	0.005***	0.001***
	(0.000)	(0.002)	(0.000)	(0.000)	(0.001)	(0.000)
Agecat4	0.000	-0.008***	-0.000	-0.001	0.013**	0.001*
	(0.000)	(0.002)	(0.000)	(0.001)	(0.005)	(0.001)
Agecat5	-0.005***	-0.023***	0.004***	0.000	0.020***	0.001
	(0.001)	(0.003)	(0.001)	(0.000)	(0.008)	(0.001)
primedu	0.003**	-0.003	0.001	0.008	-0.011	0.006
	(0.001)	(0.005)	(0.001)	(0.032)	(0.055)	(0.033)
seconedu	0.001*	-0.036	-0.001	-0.005	-0.015	0.002
	(0.001)	(0.024)	(0.001)	(0.019)	(0.144)	(0.019)
tertedu	0.002**	-0.040**	-0.001*	0.057	-0.028	-0.036
	(0.001)	(0.016)	(0.001)	(0.051)	(0.039)	(0.051)
inworkforc	0.019***	-0.093	-0.027	0.020***	-0.095	-0.029
	(0.001)	(0.145)	(0.042)	(0.003)	(0.135)	(0.041)
outworkforc	0.000	-0.046	0.016	0.000	-0.075	0.021

	(0.000)	(0.121)	(0.042)	(0.000)	(0.144)	(0.041)
wealth1	0.000	0.002	-0.000	0.006***	0.020***	-0.006***
	(0.000)	(0.001)	(0.000)	(0.002)	(0.006)	(0.002)
wealth2	0.000	0.006***	-0.001***	0.002*	0.016***	-0.002**
	(0.000)	(0.001)	(0.000)	(0.001)	(0.005)	(0.001)
wealth3	-0.000	0.007***	-0.001***	0.000	0.009	-0.001
	(0.000)	(0.002)	(0.000)	(0.001)	(0.006)	(0.001)
wealth4	0.000	0.007***	0.000*	0.000	0.004***	0.001***
	(0.000)	(0.002)	(0.000)	(0.000)	(0.001)	(0.000)
wealth5	0.001**	0.008***	0.002***	0.004*	-0.004	-0.002
	(0.000)	(0.002)	(0.001)	(0.002)	(0.005)	(0.002)
Observations	45,442	45,442	45,442	45,442	45,442	45,442

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A4: Contributions of the factors to the endowments, coefficients and interactions parts of the gender gap in LAC

	(1)	(2)	(3)	(5)	(6)	(7)
	Gender			Location		
VARIABLES	endowments	coefficients	interaction	endowments	coefficients	interaction
Female (ref=male)	0.006***	-0.004	0.001			
	(0.001)	(0.004)	(0.001)			
Rural (ref=urban)				0.002*	-0.012	0.001
				(0.001)	(0.012)	(0.001)
Agecat1	0.000	-0.006	0.000	0.000	-0.004	0.000
	(0.000)	(0.005)	(0.000)	(0.000)	(0.007)	(0.000)
Agecat2	-0.000	0.004	-0.000	0.000	-0.011	-0.000
	(0.000)	(0.005)	(0.001)	(0.000)	(0.007)	(0.000)
Agecat3	0.000	-0.005	-0.000	0.001	-0.008	-0.001
	(0.000)	(0.004)	(0.000)	(0.000)	(0.005)	(0.001)
Agecat4	0.000	0.000	0.000	0.000	-0.004**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)
Agecat5	0.000	-0.008*	-0.000	-0.002**	-0.018***	0.002**
	(0.000)	(0.004)	(0.000)	(0.001)	(0.006)	(0.001)
primedu	-0.002	-0.012	0.001	-0.019	-0.017	0.009
	(0.002)	(0.020)	(0.002)	(0.018)	(0.039)	(0.021)
seconedu	0.001	-0.026	-0.000	0.037***	-0.007	-0.003
	(0.002)	(0.035)	(0.000)	(0.011)	(0.032)	(0.012)
tertedu	0.012***	-0.010	-0.002	0.044***	-0.004	-0.006
	(0.003)	(0.010)	(0.002)	(0.008)	(0.007)	(0.009)
inworkforc	0.026***	-0.089***	-0.026***	0.011***	-0.004	-0.001
	(0.002)	(0.007)	(0.002)	(0.002)	(0.013)	(0.002)
outworkforc	0.000	-0.025***	0.014***	0.000	0.000	0.000

	(0.000)	(0.005)	(0.003)	(0.000)	(0.000)	(0.000)
wealth1	0.000	0.000	0.000	0.009***	0.014**	-0.005**
	(0.000)	(0.000)	(0.000)	(0.002)	(0.007)	(0.002)
wealth2	-0.002***	0.005	-0.001	0.001	0.006	-0.001
	(0.001)	(0.005)	(0.001)	(0.001)	(0.005)	(0.001)
wealth3	-0.002***	0.007	-0.001	0.001	0.015***	-0.001
	(0.001)	(0.005)	(0.001)	(0.001)	(0.006)	(0.001)
wealth4	0.002***	0.009*	0.001*	0.000	0.010***	0.003***
	(0.001)	(0.005)	(0.001)	(0.000)	(0.002)	(0.001)
wealth5	0.016***	0.005	0.003	0.006**	0.007	0.004
	(0.002)	(0.005)	(0.003)	(0.003)	(0.005)	(0.003)
Observations	18,498	18,498	18,498	18,498	18,498	18,498

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A 5: Contributions of the factors to the endowments, coefficients and interactions parts of the gender gap in MENA

	(1)	(2)	(3)	(5)	(6)	(7)
	Gender			Location		
VARIABLES	endowments	coefficients	interaction	endowments	coefficients	interaction
Female (ref=male)	0.001	-0.004**	0.000			
	(0.001)	(0.002)	(0.000)			
Rural (ref=urban)				-0.000	-0.026	0.001
				(0.001)	(0.017)	(0.001)
Agecat1	-0.007***	0.010	0.001	0.007**	-0.050***	0.007*
	(0.003)	(0.007)	(0.001)	(0.004)	(0.016)	(0.003)
Agecat2	-0.001	0.035***	0.000	-0.002	-0.044***	-0.003
	(0.003)	(0.008)	(0.001)	(0.003)	(0.016)	(0.003)
Agecat3	0.003	0.023***	-0.001	-0.005	-0.021**	-0.006*
	(0.002)	(0.006)	(0.001)	(0.003)	(0.010)	(0.003)
Agecat4	0.003**	0.012***	-0.001*	0.000	-0.027***	-0.000
	(0.001)	(0.004)	(0.001)	(0.000)	(0.003)	(0.002)
Agecat5	0.000	0.000	0.000	-0.003	-0.017*	0.003
	(0.000)	(0.000)	(0.000)	(0.002)	(0.009)	(0.002)
primedu	0.022*	0.084	-0.017	0.034	-0.002	0.001
	(0.011)	(0.059)	(0.012)	(0.068)	(0.146)	(0.071)
seconedu	-0.003	0.125	0.005	-0.000	0.038	0.004
	(0.004)	(0.107)	(0.005)	(0.016)	(0.149)	(0.017)
tertedu	0.000	0.072	0.010	0.032	0.007	0.012
	(0.006)	(0.053)	(0.008)	(0.053)	(0.034)	(0.055)
inworkforc	0.091***	-0.073***	-0.064***	0.016***	-0.015	-0.002
	(0.005)	(0.007)	(0.007)	(0.005)	(0.019)	(0.003)
outworkforc	0.000	0.000	0.000	0.000	0.000	0.000

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
wealth1	0.000	-0.007**	0.001*	0.007*	0.021*	-0.006*
	(0.000)	(0.003)	(0.000)	(0.003)	(0.011)	(0.003)
wealth2	-0.000	-0.001	0.000	0.000	0.000	0.000
	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
wealth3	-0.000	-0.002	0.000	-0.000	0.015	0.000
	(0.000)	(0.005)	(0.000)	(0.001)	(0.010)	(0.001)
wealth4	0.001	-0.007	-0.000	0.001	0.000	0.000
	(0.000)	(0.005)	(0.000)	(0.001)	(0.010)	(0.001)
wealth5	0.002***	-0.010*	-0.001	-0.001	0.020*	0.003
	(0.001)	(0.006)	(0.001)	(0.002)	(0.011)	(0.002)
Observations	14,062	14,062	14,062	14,062	14,062	14,062

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A 6: Contributions of the factors to the endowments, coefficients and interactions parts of the gender gap in SA

	(1)	(2)	(3)	(5)	(6)	(7)
	Gender			Location		
VARIABLES	endowments	coefficients	interaction	endowments	coefficients	interaction
Female (ref=male)	0.001	-0.027***	0.002*			
	(0.001)	(0.010)	(0.001)			
Rural (ref=urban)				-0.000	-0.019*	0.001
				(0.001)	(0.012)	(0.001)
Agecat1	0.008***	0.034***	-0.004**	-0.004	0.034***	0.001
	(0.003)	(0.013)	(0.002)	(0.003)	(0.012)	(0.001)
Agecat2	0.003*	0.028**	-0.002	0.002	0.025**	-0.001
	(0.001)	(0.011)	(0.001)	(0.002)	(0.012)	(0.001)
Agecat3	-0.000	0.008	0.000	-0.002*	-0.002	-0.000
	(0.000)	(0.008)	(0.000)	(0.001)	(0.008)	(0.001)
Agecat4	-0.002*	0.008*	0.002*	0.000	0.003	-0.000
	(0.001)	(0.004)	(0.001)	(0.001)	(0.006)	(0.000)
Agecat5	0.000	0.008***	0.002**	0.000	0.000	0.000
	(0.000)	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)
primedu	-0.063*	-0.235	0.057	-0.031	-0.017	0.005
	(0.033)	(0.158)	(0.038)	(0.029)	(0.180)	(0.058)
seconedu	0.059***	-0.163	-0.036	0.062**	0.025	0.015
	(0.021)	(0.106)	(0.024)	(0.027)	(0.097)	(0.056)
tertedu	0.041***	-0.017	-0.021	0.006*	-0.003	-0.001
	(0.013)	(0.012)	(0.014)	(0.003)	(0.018)	(0.003)
inworkforc	0.068***	-0.054***	-0.051***	-0.002**	0.032**	-0.001
	(0.006)	(0.009)	(0.008)	(0.001)	(0.013)	(0.001)
outworkforc	0.000	0.000	0.000	0.000	0.000	0.000

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
wealth1	0.003**	0.009	-0.002	0.004	0.003	-0.001
	(0.001)	(0.007)	(0.002)	(0.002)	(0.008)	(0.003)
wealth2	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
wealth3	0.000	0.009	-0.000	0.002**	0.020***	-0.003**
	(0.001)	(0.007)	(0.000)	(0.001)	(0.007)	(0.001)
wealth4	-0.001	0.011*	0.001	-0.001*	0.014**	0.002*
	(0.001)	(0.007)	(0.001)	(0.001)	(0.007)	(0.001)
wealth5	-0.007***	0.021***	0.008***	-0.014***	0.020***	0.017***
	(0.002)	(0.007)	(0.003)	(0.004)	(0.006)	(0.005)
Observations	8,008	8,008	8,008	8,008	8,008	8,008

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A7: Contributions of the factors to the endowments, coefficients and interactions parts of the gender gap in SSA

	(1)	(2)	(3)	(5)	(6)	(7)
	Gender			Location		
VARIABLES	endowments	coefficients	interaction	endowments	coefficients	interaction
Female (ref=male)	0.000	-0.003	0.000			
	(0.000)	(0.005)	(0.000)			
Rural (ref=urban)				0.000	0.002	-0.000
				(0.000)	(0.005)	(0.000)
Agecat1	0.004***	0.003	-0.000	-0.000	-0.022***	-0.000
	(0.001)	(0.007)	(0.001)	(0.000)	(0.006)	(0.000)
Agecat2	0.000	0.003	-0.000	0.001	-0.015***	-0.002***
	(0.000)	(0.005)	(0.000)	(0.001)	(0.005)	(0.001)
Agecat3	-0.000	0.002	0.000	-0.000	-0.009***	0.000*
	(0.000)	(0.003)	(0.000)	(0.000)	(0.003)	(0.000)
Agecat4	0.000	-0.002	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.000)
Agecat5	-0.000	0.001	0.000	0.000	0.002	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.000)
primedu	0.016***	-0.004	0.001	0.036***	0.004	-0.002
	(0.004)	(0.031)	(0.007)	(0.010)	(0.035)	(0.015)
seconedu	0.014***	-0.025	-0.005	0.027***	-0.000	-0.000
	(0.003)	(0.027)	(0.005)	(0.008)	(0.023)	(0.012)
tertedu	0.010***	-0.004	-0.003	0.018***	-0.002	-0.003
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)
inworkforc	0.021***	0.003	0.001	0.002**	0.016**	0.000*
	(0.001)	(0.007)	(0.002)	(0.001)	(0.007)	(0.000)
outworkforc	0.000	0.000	0.000	0.000	0.000	0.000

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
wealth1	0.002***	-0.001	0.000	0.011***	0.034***	-0.011***
	(0.001)	(0.003)	(0.001)	(0.001)	(0.002)	(0.001)
wealth2	0.000	0.000	0.000	0.008***	0.027***	-0.009***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.001)
wealth3	-0.001**	-0.001	0.000	0.003***	0.031***	-0.006***
	(0.000)	(0.003)	(0.000)	(0.001)	(0.003)	(0.001)
wealth4	0.000	0.001	0.000	-0.001***	0.027***	0.003***
	(0.000)	(0.003)	(0.000)	(0.000)	(0.003)	(0.001)
wealth5	0.007***	0.008**	0.003**	0.000	0.024***	0.020***
	(0.001)	(0.004)	(0.001)	(0.000)	(0.002)	(0.002)
Observations	36,021	36,021	36,021	36,021	36,021	36,021

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A8. Financial inclusion Index (FI)

Indicators	*N*	Mean	Std. dev.
Owns a financial account (1= if the respondent owns a bank account, MFI account or cooperative account; 0=otherwise)	143887	0.656	0.475
Own a Mobile money account ((1= if the respondent owns a mobile money account; 0=otherwise)	143887	0.269	0.443
Owns a Credit card (1= if the respondent has a credit card; 0=otherwise)	143887	0.382	0.486
Own a Debit card (1= if the respondent has a debit card; 0=otherwise)	143887	0.550	0.497
Informal saving groups (1= if the respondents belongs to informal savings group; 0=otherwise)	143887	0.126	0.332
Withdrawalbank (1= if the respondents withdraws money using a bank account, MFI account or cooperative account; 0=otherwise)	143887	0.802	0.399
WithdrawalMoMo (1= if the respondents withdraws money using a Moblie money account; 0=otherwise)	143887	0.805	0.396
Depositbank (1= if the respondents deposit money using a bank account, MFI account or cooperative account; 0=otherwise)	143887	0.786	0.410
DepositMoMo (1= if the respondents depositi money using a Moblie money account; 0=otherwise)	143887	0.198	0.398
Use debit card (1= if the respondent used an ATM/debit card in the past twelve months; 0=otherwise)	143887	0.757	0.429
Use debt card in-store (1= if the respondent used a debit card in-store in the past twelve months; 0=otherwise)	143887	0.871	0.335
Use a credit card (1= if the respondent used a credit card in the past twelve months; 0=otherwise)	143887	0.832	0.374
Use credit card in-store (1= if the respondent used a credit card in-store in the past twelve months; 0=otherwise)	143887	0.812	0.390
Wage/salary pay1 (1= if the respondent received wage payments to a card; 0=otherwise)	143887	0.225	0.418
Wage/salary pay2 ((1= if the respondent received wage/salary payments into a mobile phone; 0=otherwise)	143887	0.186	0.389
Government transfers/pension (1= if the respondent received a government transfer or pension to a card; 0=otherwise)	143887	0.215	0.411
Agricultural pay1 ((1= if the respondent received agricultural payments to a card; 0=otherwise)	143887	0.141	0.136
Agricultural pay2 ((1= if the respondent received agricultural payments into a mobile phone; 0=otherwise)	143887	0.073	0.260
Use mobile phone1(1= if the respondent used a mobile phone or internet to access the account; 0=otherwise)	143887	0.597	0.490
Use mobile phone2(1= if the respondent used a mobile phone or internet to check account balance; 0=otherwise)	143887	0.657	0.475
Pays digitally (1= if the respondent paid digitally for an in-store purchase; 0=otherwise)	143887	0.916	0.277
Other digital payment1 (1= if the respondent made any other digital payment in the past year; 0=otherwise)	143887	0.357	0.479
Other digital payment2 (1= if the respondent receives any other digital payment in the past year; 0=otherwise)	143887	0.685	0.464
DFI (index ranging from 0 to 23)	143887	6.197	5.578
DFI (dummy)	143887	0.73	0.462

Table A9. Digital financial inclusion Index (DFI)

Indicators	*N*	Mean	Std. dev.
Own a Mobile money account ((1= if the respondent owns a mobile money account; 0=otherwise)	143887	0.269	0.443
Owns a Credit card (1= if the respondent has a credit card; 0=otherwise)	143887	0.382	0.486
Own a Debit card (1= if the respondent has a debit card; 0=otherwise)	143887	0.550	0.497
WithdrawalMoMo (1= if the respondents withdraw money using a Moblie money account; 0=otherwise)	143887	0.805	0.396
DepositMoMo (1= if the respondents depositi money using a Moblie money account; 0=otherwise)	143887	0.198	0.398
Use debit card (1= if the respondent used an ATM/debit card in the past twelve months; 0=otherwise)	143887	0.757	0.429
Use debt card in-store (1= if the respondent used a debit card in-store in the past twelve months; 0=otherwise)	143887	0.871	0.335
Use a credit card (1= if the respondent used a credit card in the past twelve months; 0=otherwise)	143887	0.832	0.374
Use credit card in-store (1= if the respondent used a credit card in-store in the past twelve months; 0=otherwise)	143887	0.812	0.390
Wage/salary pay1 (1= if the respondent received wage payments to a card; 0=otherwise)	143887	0.225	0.418
Wage/salary pay2 ((1= if the respondent received wage/salary payments into a mobile phone; 0=otherwise)	143887	0.186	0.389
Government transfers/pension (1= if the respondent received a government transfer or pension to a card; 0=otherwise)	143887	0.215	0.411
Agricultural pay1 ((1= if the respondent received agricultural payments to a card; 0=otherwise)	143887	0.141	0.136
Agricultural pay2 ((1= if the respondent received agricultural payments into a mobile phone; 0=otherwise)	143887	0.073	0.260
Use mobile phone1(1= if the respondent used a mobile phone or internet to access the account; 0=otherwise)	143887	0.597	0.490
Use mobile phone2(1= if the respondent used a mobile phone or internet to check account balance; 0=otherwise)	143887	0.657	0.475
Use internet1 (1= if the respondent made bill payments online using the Internet; 0=otherwise)	143887	0.369	0.482
Use internet2 (1= if the respondent sends money to a relative or friend online using the Internet; 0=otherwise)	143887	0.355	0.478
Use internet3 (1= if the respondent bought something online using the Internet; 0=otherwise)	143887	0.351	0.477
Pays digitally (1= if the respondent paid digitally for an in-store purchase; 0=otherwise)	143887	0.916	0.277
Other digital payment1 (1= if the respondent made any other digital payment in the past year; 0=otherwise)	143887	0.357	0.479
Other digital payment2 (1= if the respondent receives any other digital payment in the past year; 0=otherwise)	143887	0.685	0.464
DFI (index ranging from 0 to 17)	143887	4.958	4.435
DFI (dummy)	143887	0.744	0.436