



Gender disparity and Digital Financial inclusion in Advancing the Attainment of Sustainable Development Goals in Developing Countries

Favourate Y Mpofu^{*1}

¹ College of Business and Economics, University of Johannesburg, South Africa

ARTICLE INFO	ABSTRACT
<p><i>Received: 21 November 2022</i> <i>Reviewed: 29 January 2023</i> <i>Revised: 11 February 2023</i> <i>Accept: 26 March 2023</i></p>	<p>Purpose: Digital financial services delivered through fintech have grown substantially in developing countries to address the issues of access, affordability, and usage that cripple financial inclusion in these countries. Despite the growth of digital financial services researchers continue to lament the problem of financial inclusion for women. Researchers continue to allude to most women being digitally financially excluded in developing countries. Through a systematic literature review, this study sought to establish the challenges explaining the digital financial exclusion of women or the continued low levels of financial inclusion in developing countries. In addition, the paper sought to unpack how the digital financial inclusion or exclusion of women could impact the realization of the United Nations 2030 Sustainable Development Goals.</p> <p>Methodology: The paper adopted a systematic review approach. Literature on the subject was gathered from Scopus indexed journals, reviewed and synthesized</p> <p>Findings: The research established that factors such as digital, social, and financial inclusion, taxation of DFS, socioeconomic and sociocultural challenges as well literacy challenges, and regulatory and legal factors were responsible for the financial and digital financial exclusion of women, thus expanding the gender gap. Digital financial inclusion was found to be critical for economic development and the fruition of SDGs because women spend more on family, and development and generally save better than men.</p> <p>Originality/Value: Digital financial inclusion and financial inclusion are very fundamental to sustainable development and the accomplishment of the SDGs globally and more so in developing countries. Developing countries face an array of challenges toward achieving sustainable development and economic growth. These challenges include poverty and extreme poverty, corruption, resources shortages, lower levels of development, unemployment, and inequality as well as the financial exclusion of vulnerable groups of the population. While several studies have explored challenges of financial inclusion in developing countries, there is a dearth in literature that explores the intersection between digital financial inclusion or exclusion of women in developing countries and the realization of the SDGs. This paper sought to address this void by imploring the intersection between gender disparity and digital financial inclusion as these concern the realization of SDGs in developing economies.</p>
<p>Keywords: <i>Digital financial inclusion, Digital financial literacy, Financial inclusion, Gender disparity, SDGs</i></p>	

* Corresponding Author: fsfsebele@gmail.com

1. Introduction

Financial inclusion is an important topic in development economics, economic growth, and poverty alleviation discussions as well as the achievement of the United Nations 2030 Sustainable Development Goals (SDGs). Ghosh (2021) proclaims that 1.7 billion people are financially excluded globally and 30% of this estimated number is the adult population. More than half of this unbanked population is attributable to women. Thirty-five percent of the unbanked population is observed to be in developing countries [1]. Edelman (2019) contends that the financial sector is the most untrusted in the world, despite it being the most important sector in economies. The sector drives all other sectors of the economy, and its instability can drive economies into recession [2]. Edelman (2020) and Yan et al (2021) state that trust perceptions towards digital financial services (DFSs) improved during the Covid-19 pandemic, due to digital transformation in the financial sector which became eminent due to responses to the pandemic such as the lockdown measures, social distancing, and the discouragement on the use of cash owing to its susceptible to being a medium of transmitting the virus [3, 4]. While the financial services sector was already transforming its service provisioning and access platforms thereto due to technological advancements and the growth of the digital economy as well as e-commerce, the Covid-19 pandemic accelerated the use of digital services (DFSs) [5]. Even if people did not trust them, they had no choice but to use them. This introduces the concept of digital financial inclusion (DFI).

Financial exclusion of women leads to gender discrimination in accessing government funding and loans. SDG 5 (gender equality) is crucial in attaining gender equality and achieving financial inclusion for women and girls in African countries and other developing countries. While focusing on Ghana, Namibia, Lesotho, and Kenya, the researcher, further states that there is a concern about the gender gap arguing that women and girls continue to be disadvantaged and marginalized [6].

The UN 2030 Agenda for Sustainable Development speaks to the importance of ICT and global connectedness in accelerating human progress in reducing the digital divide and developing knowledge societies, enhancing technological and scientific education in different areas such as health, energy, and medicine. Digitalization is key to driving economic growth, financial inclusion, and digital transformation of financial service delivery as well as enabling the achievement of the UN 2030 SDGs.

Ghosh (2022) argues that even though digital technology and fintech have expanded digital finance and usage of DFSs, “evidence in favor of digital financial services improving economic empowerment for women is less convincing”, implying that, that which relates to the advancement of DFI and the attainment of the SDGs (for example addressing gender equality, and reducing inequalities, SDGs 5 and 10) through DFSs is less persuasive and requires further exploration. Furthermore, the researcher posits that 67% of women with accounts were using DFSs for paying and receiving money whereas 72% of men used the same services in developing countries, pointing to a gender gap in the use of DFSs and ultimately in DFI [7]. This points to the need to investigate the causes of this gender gap and the hindrances to women embracing DFSs in developing countries because the literature holds that DFI is a critical enabler for economic growth and poverty reduction [8], [6]. Demirgüç-Kunt, Hu, and Klapper (2019) affirm the fundamental role of financial inclusion proclaiming “Financial inclusion can help promote the development of inclusive financial systems that allow people to invest in their education and health, save for retirement, capitalize on business opportunities and confront shocks” [9].

While cross-country literature and microeconomic literature on financial inclusion are extensive, there is a dearth of literature on women, DFI, and the SDGs [8] as well as research that focuses on DFI, gender disparity, and the advancement of SDGs. Through a critical literature review, this paper sought to understand the drivers or key determinants and challenges of DFI, especially for women in developing countries. Secondly, the paper sought to assess how these challenges or drivers affect financial inclusion concerning gender and how these gender disparities in DFI influence the advancement of SDGs in developing countries. In achieving these objectives, the paper sought to identify the policy levers for DFI and inclusive digital finance, which is gender sensitive or accommodative. It is important to identify policy variables that can be tweaked by developing country governments to reduce inequalities and gender divide in the provisioning of access and access to DFSs in developing countries, thus promoting gender-inclusive DFI.

This paper contributes to literature from three strands. First, this paper adds to the theoretical body of literature on DFI in developing countries, bringing out the fundamental role played by the gender divide in promoting or discouraging DFI. DFI is a research topic that is understudied, topical, and in its nascent stages of implementation in developing countries. This paper sought to address the research gaps identified in the literature by [10], [8], [6] and [11] on the dearth of literature on DFI. Second, by accentuating some of the nuances and challenges influencing gender disparity on DFI and the attainment of SDGs in development that researchers and policymakers would like to explore further and pay attention to respectively. Third, in terms of policy and practice, the paper discusses the variables that governments and DFSs providers must pay attention to in policymaking that not only ensure only DFI, but the other three aspects that contribute to DFI (digital inclusion, financial inclusion, and social inclusion) are addressed, with respect gender disparity. For example, without addressing inequalities in access opportunities such as education, economic opportunities, employment opportunities, financial opportunities, financial opportunities, and oppressive cultural norms that perpetuate gender inequality, gender disparity will remain a constraint to both financial and DFI.

This paper consists of five sections. Section 1 gives an introductory insight into the paper. Section 2 unpacks the methodology employed in the review process. Section 3 reviews the literature to address the paper's objectives. The literature review focused on financial inclusion, DFI, and the attainment of the SDGs concerning the gender gap Section 4 presents the findings of the review, while the penultimate section 5 concludes the paper, summarizing the limitations of the research, areas of further research, and recommendations.

2. Materials and Methods

The review used a systematic literature review approach. The objective was to assess, comment on, and critically review the literature on gender disparity and DFI to accentuate the inconsistencies and consistencies in previous studies as well as to identify research and policy gaps. This review was carried out within the framework provided by Webster and Watson (2002) who posit that review researchers must address four essential issues in conducting an extensive and convincing review [12]. These include "contribution ("what's new?"), impact ("so what?"), logic ("why so?"), and thoroughness ("well done?"). The importance of highlighting the research contribution, the research process, and the review outcomes was affirmed by [13] and [14] who argue that outlining these leads credibility of the review process and the review findings. Tay et al. (2022) and Gammage et al (2017) in their research on financial inclusion and DFI respectively emphasized the need to clearly articulate the research process [15], [16]. Both articles applied a systematic review approach to their research

2.1. Literature Search Strategy

This research used the "Publish or Perish" tool to search for Scopus-indexed articles which were the focus of this review. The search terms used include "digital financial inclusion and gender disparity, divide or gap", "financial inclusion and gender divide", "Gender disparity, divide or gap and financial inclusion", "Gender disparity and digital financial inclusion", and "Digital financial inclusion or financial inclusion and women empowerment" and "Digital financial inclusion and women entrepreneurship". Some of the search terms used were borrowed from [16]. As highlighted by Mpofo (2021) that review articles provide a vital source of information or a road map to find research gaps as well as leading scholars in the research domain being studied, this review used previous studies to identify the research articles to be reviewed [13]. The most vital source was the work of Tay et al. (2022) who in their review on financial inclusion grouped the articles they reviewed following the databases where the article was accessed and the area of focus (whether it focused on financial inclusion in general or with a specific focus on gender as well as whether the article centered on developing or developed countries). Considering that this article focused on gender, financial inclusion, and DFI in developing countries, 12 of the financial inclusion gender-oriented articles used by Tay et al. (2022) were reviewed in the current research. By clicking on each of the selected articles on the reference list of Tay et al (2022)'s paper, the link automatically took the researcher to the paper [15]. Most of the papers were open-access and accessible. Those that were not accessible were accessed using the university's institutional login. In some of the databases such as Science Direct, Elsevier, Emerald, and Routledge (Taylor and Francis), while accessing the articles mined from the reference list of Tay et al

(2022), suggestions of other articles on gender and financial inclusion or DFI that the researcher could access were made automatically by the system. The suggested articles were also accessed. For the leading scholars such as Ghosh (2013) [17], Demirguc-Kunt and Klapper (2013) [18], Ozili (2018) [19], and Ojo (2022a) [6], the researchers conducted backward and forward snowballing to identify prior work and contemporary work of the researchers. This not only enhanced the number of studies reviewed but also gave an into the previous and current work as well as the progression and development in the field as evidenced by arguments in the various articles. The progress in the research and evolving views also reflected the dynamism in the research and business environment as well as to move from traditional to DFI.

2.2. Inclusion and Exclusion Criteria

In addition to journal articles, policy briefs, working papers, and policy evaluations from development bodies such as the World Bank, International Monetary Fund (IMF), Institute of Development Studies, and Organization of Economic and Development were reviewed to enhance the policy and practice angle of the review. Newspapers, blog spots, and magazine articles were excluded from this review. The review process showing the inclusion and exclusion criteria is presented in Figure 1.

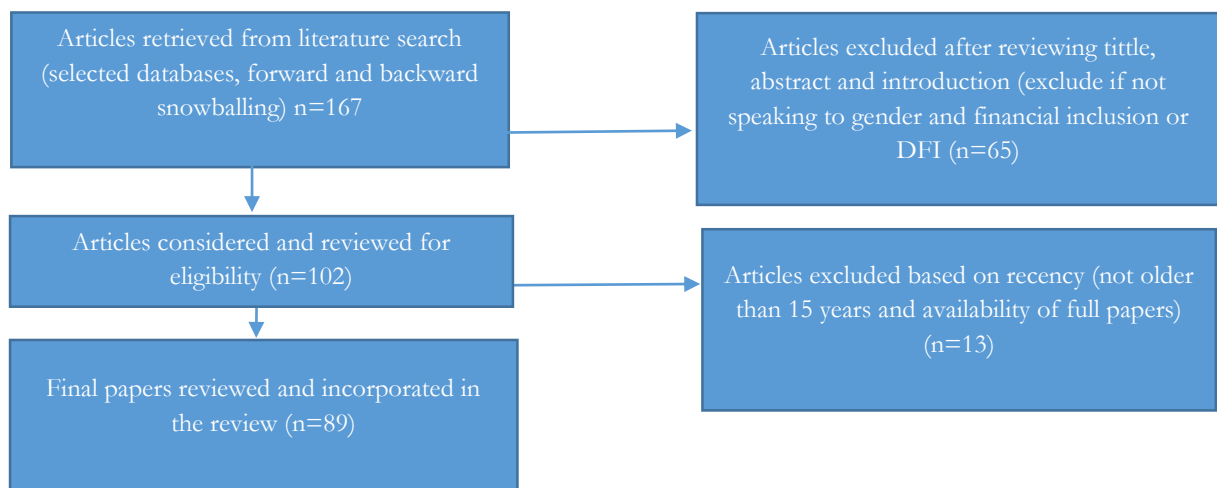


Figure 1: Flowchart of the literature review process
Source: Author's Compilation

The schematic presentation outlines how literature was gathered during the preliminary search, the exclusion and inclusion criteria as well as how data was analyzed, integrated, and presented. Literature was reviewed until the point of saturation was reached. This was when further reviewing of the literature no longer revealed any new information or perspectives that were different from those already gleaned. At this point, further examination of information was considered futile [20], [21]. Sebele-Mpofu (2020) encourages a review of the literature until the saturation point is reached [20]. Wee and Banister (2016) encourage researchers to cover at least 50 to 100 papers to make a review comprehensive and convincing [22].

2.3. Analysis and Discussion of findings

Thematic analysis was used during the analysis and presentation of findings. Braun and Clarke (2021) encourage the use of thematic analysis in presenting and discussing findings in qualitative research-oriented studies [23]. This being a review article the researcher used direct quotations for enhancing discussions on findings, development of evidence, thought provocation, emphasis, and elaboration where necessary as suggested by [21], [24]. In the same vein, Morse (2015) argues that direct quotes can be used to show the audit trail of literature and discussions to enhance the credibility of research [25].

3. Literature Review

This section reviews the literature on gender disparity as it affects financial inclusion and DFI as it affects the attainment of the SDGs

3.1. Definition of Key Terms

This section explains the important terms to understand this review.

3.1.1 Gender and Gender equality

Gender describes the social characteristic and opportunities linked to being male or female. The opportunities available to men and women depend on the social orientation of society (socialization), the norms and values, and context and time-dependent.

Gender equality speaks to ensuring equal rights, access to equal opportunities, and equal responsibilities and roles for both males and females. This considers equal educational, employment, political, economic, financial, and social opportunities [16].

3.1.2 Financial inclusion

Financial inclusion is defined by the World Bank 2014:15 as “the proportion of individuals and firms that use financial services” and Dermiguc-Kunt et al. (2015) relate it to having a bank account [26], while Klapper et al (2016) connect it to access to formal financial services such as loans, insurance and banks accounts including having these services available to everyone who effectively and actively utilizes them to fulfill their needs [27].

3.1.3 Digital Financial Inclusion

Layman and Lauer (2015) explain DFI as “digital access and use of financial services”. This entails access to services such as credit, payments, remittances, savings, and insurance which are delivered through digital channels [28].

3.1.4 Women's Empowerment

Women empowerment describes the widening of choices for women and enhancing their voices through transforming power relations and giving women and girls power and independence to make decisions and to control the future and direction of their lives [16].

3.2. Gender Disparity and Financial Inclusion in Developing Countries

In early literature financial inclusion was articulated as [29] or the “use of formal accounts” [30]. Owning a bank account encourages savings by small businesses and individuals, empowerment of women and girls, responsible consumption behavior, and use of financial resources and access to credit. Financial inclusion is generally considered key to poverty reduction, lowering of inequalities (income and gender) as well as facilitating economic growth (Demirgüç-Kunt, & Klapper, 2013) [18]. Affirming the importance of financial inclusion, Gammage et al. (2017) asseverate:

“Better and more meaningful financial inclusion may prove to be the key to unlocking the potential for micro and small enterprises to grow, reducing the exposure of poor and rural communities to income shocks, dynamizing growth, and promoting more sustainable and equitable development. A recent analysis of financial inclusion underscores that where individuals have access to financial services and products, even in poor communities they are better able to plan and manage their income and households to hold savings and those invest those savings in productive uses” [16].

Though there are arguments that financial inclusion does not necessarily translate to the usage of accounts, savings, or an increase in assets, access to finance is still pivotal to sustainable development and the realization of SDGs. One might own an account but still be irresponsible in consumption, savings, or investments including in accessing credit leading to over-indebtedness. These unfavorable actions might contribute negatively to economic development, poverty alleviation, and reduction of inequalities [31]. The issue of financial inclusion is fraught with debates and disagreements on the definitions and on how to appropriately measure it. Other researchers have suggested that it must be measured from the user perspective using bank account ownership [18], while others advocate for measuring from the service provision (supply) perspective, assessing the number of bank accounts,

automated teller machines (ATMs) and bank branches. The UN Agenda on Sustainable development as covered in Target goal 8.10 of SDG 10 on facilitating decent work and economic growth refers to assessing inclusive finance based on three metrics, that are bank branches, number of ATMs, and account holders (both bank and mobile money) [8]. Financial inclusion is described as multidimensional and can be understood, analyzed, and measured from an array of angles to cover access, affordability, usage, efficiency, and convenience. DFI brings the digital or technology aspect into financial inclusion to mitigate the challenges to financial inclusion such as costs, distance, infrastructural and regulatory challenges, and documentation requirements among others [19].

Financial inclusion is considered gender-biased with significant gaps in access levels between males and females globally. The gender gap is considered systematic and persistent. Globally, 36% of women are observed to have bank accounts as compared to 46% of men [18]. The gender gap relating to financial inclusion is prevalent across all income groups though more pronounced among the poor and low-income earners. The gender gap is also arguably more prevalent in low- and middle-income countries. Demirgüç-Kunt and Klapper (2013) allude to legal discrimination, gender cultural norms such as legal restrictions on women’s rights to own and inherit property, work, and head the family as some of the constraints impeding women’s capacity to have bank accounts, save and make financial decisions, borrow, or even purchase assets [18]. The gender divide in financial inclusion is restrictive to women’s participation in the labor force, entrepreneurship, political dialogue and empowerment, and economic opportunities [6]. Affirming the gender disparity in financial inclusion, Ojo (2022b) posits:

“In spite of the universal recognition of financial inclusion as one of the nine key pillars of sustainable development agenda, yet the problem still remains unabated and efforts to expand financial inclusion for the marginalized remain feeble, especially with regard to women and girls to have access to finance as their constitutional right” [11].

Even though the literature on financial inclusion and DFI emphasize the gender gap with women being less financially included, in Zimbabwe Chamboko (2022) established that gender did not significantly influence the use of financial services such as receiving money, making payments, and the frequency in the usage of DFSs. The researcher points to education, geographical location, source, and level of income as some of the critical determinants of financial inclusion in addition to age and gender [32]. The findings on the influence of gender not being significant in DFI in Zimbabwe could be linked to the contextual environment in the country. Zimbabwe is characterized by a myriad of macro-economic difficulties such as extreme poverty estimated at 49% in 2020 and cash shortages leading to cash being available at a premium. Corruption and bribes are also associated with cash shortages, thus pushing people to use DFSs such as mobile and plastic money (transfers and swipes). These challenges were pointed out by [33], [34], [35], [36]. Therefore, the use of DFSs could be attributed to existing economic settings that leave consumers with no choice but to resort to the available DFSs in the absence of cash. This argument could be buttressed by the lack of trust in financial services in the country as articulated by [32], [36]. The researchers posit that with chronic currency changes, a multi-currency environment as well as inconsistency in policy prescriptions, and the loss of savings experienced by citizens due to inconsistent policy changes and inflation, there is little if any trust in financial institutions and DFSs.

Table 1 gives a summary of the studies reviewed and the databases where these studies were accessed.

Table 1: Summary of Reviewed Studies on Gender, Financial Inclusion, and DFI

Studies	Focus	Database
Aziz and Naima (2021) [10]	The study sought to bridge the gender divide gap between assumptions concerning financial inclusion and the notions of access and usage of digital tools	Scopus
Emara and Moheildin (2021) [37]	While focusing on the MENA region, the study examines the connection between financial inclusion, governance, and economic growth	Science Direct

Chamboko (2022) [32]	The influence of gender and age gap on the utilization of digital services in Zimbabwe	Scopus
Feghali et al (2021) [38]	The research focuses on the impact of how financial services are defined on financial stability and on measuring financial inclusion	Science Direct
Ghosh (2021) [1]	Examines trust as a fundamental driver for financial inclusion	Science Direct
Gutiérrez-Romero and Ahamed (2021) [39]	How financial inclusion could enhance poverty reduction amidst the Covid-19 pandemic	Science Direct
Hasan et al (2021) [40]	Assessing the effect of financial literacy on financial inclusion through access to fintech, microfinance, and banking	Springer
Huang et al. (2021) [41]	Evaluating the influence of financial inclusion and trade openness on economic growth	Science Direct
Lu et al (2021) [42]	Investigates how individualism affects financial inclusion	Science Direct
Pradhan et al (2021) [43]	The impact of financial inclusion and Information and Communication Technology infrastructural development on the short and long-term economic growth patterns in India	Science Direct
Safari (2019) [44]	Consumer perceptions of mobile banking	
Undale et al (2021) [45]	How demographic factors influence the use of mobile money (e-wallet). The factors include age, income, and gender among others	Emerald
Soekarno et al (2020) [46]	Investigating how gender influenced digital financial inclusion in Indonesia	ProQuest
Ferrata (2019) [8]	The role of financial inclusion or access to financial services in enabling the vulnerable groups of the population to contribute to the achievement of the SDGs and welfare improvements for these disadvantaged groups	ProQuest
Dawei et al (2018) [47]	Assessed how mobile money and digital currency allow financial service providers to process small-scale transactions at lower costs that are affordable to the previously financially excluded individuals and small businesses	Scopus
Ghosh and Vinod (2017) [48]	Challenges to the financial inclusion of women in India	Science Direct
Kairiza et al (2017) [49]	Assessing the relationship between financial inclusion and gender disparity or gap using Tobit and OLS exercises among entrepreneurs in Zimbabwe	Science Direct
Ghosh (2022) [7]	The link between political empowerment and financial inclusion of women	
Ohionu and Ogbeide-Osaretin (2019) [50]	Using the generalized method of moments (GMM) on panel data focuses on financial inclusion and the reduction of gender inequality in SSA	Sage
Mndolwa and Alhassan (2020) [51]	Gender disparities as they relate to financial inclusion in Tanzania	Wiley
Kulkarni & Ghosh (2021) [52]	The gender gap in the digitalization of financial services in India and how this digitalization affects financial inclusion, using secondary	Routledge

Source: Author's Compilation

3.3 Gender Disparity and DFI

3.3.1 Digital Financial Inclusion

DFI is arguably essential in building a more financially inclusive society. DFI is contemporary in academic, economic, and business research. DFI refers to having access to financial services that are affordable, reliable, convenient, and diverse using digital technologies by all groups of the population [31], [15]. Digital technologies such as mobile money, fintech, mobile banking, or internet-supported money transfer platforms are described as vital enablers for the provisioning and access of DFSs. DFI is inextricably linked to financial inclusion and social inclusion. Digital inclusion and social inclusion contribute to DFI as highlighted by Aziz and Naima (2021:4) who assert “We argue that digital financial inclusion is the intersection of financial inclusion (financial access and literacy), digital inclusion (accessibility, affordability, and ability) and social inclusion (social network and social capital)” [10]. According to Koomson et al (2021) and Kofman and Payne (2021), financial literacy can help intensify financial inclusion. Figure 2 presents a schematic relationship between digital financial inclusion, social inclusion, digital inclusion, and DFI [53], [54]. The Figure shows that to achieve needs the achievement of the other types of inclusions. Where the three circles intersect represents DFI

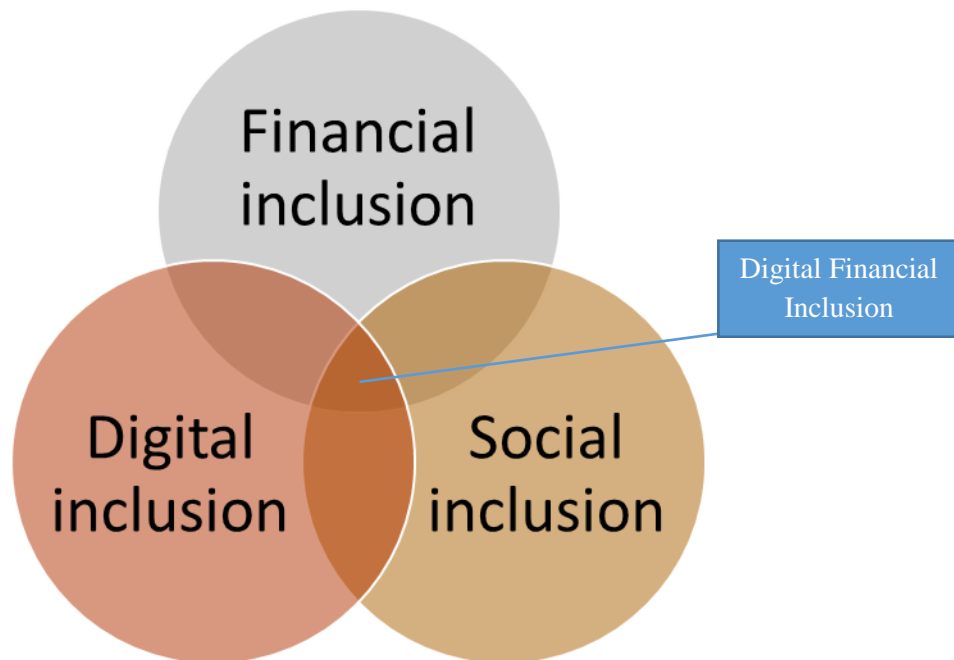


Figure 2: Relationship between financial inclusion, social inclusion, digital inclusion, and DFI

Source: Adapted from Aziz and Naima (2021) [10].

Social inclusion focuses on technology in society, social capital, and social networks that can have an impact on DFI. Social inclusion focuses on information availability or asymmetry, resource sharing, trust in financial institutions and regulatory frameworks, and general social norms, values, and responsibilities. Social inclusion can promote both financial inclusion and digital financial inclusion. The availability of adequate and reliable information on financial services and DFSs, opportunities, and risks as well as remedial processes can encourage or discourage their usage. The connectivity of users and financial institutions as well as the quality of communication, interaction, and feedback can affect trust and the willingness to use both traditional and modern financial services. Digital inclusion is a strong driver for social inclusion, financial, and DFI inclusion. Digital inclusion addresses issues relating to the availability of digital infrastructure and digital devices and mobile devices, the ability and know-how to use digital tools (digital literacy), and the affordability and convenience of using these digital tools. Digital literacy has to do with digital skills and the ability to use digital tools. Digital literacy influences the attitudes and willingness to use digital tools and ultimately concerns the study

motivations and attitudes of women towards fintech and DFS, thus affecting, DFI. When then combined with financial literacy, which relates to knowledge of financial management, and usage of financial resources (spending, savings, accessing loans, financial risk, or over-indebtedness), digital literacy results in digital financial literacy which affects DFI.

3.3.2 Gender divide and DFI

Gender bias and gender inequality affect financial inclusion and DFI for women [6]. The gender divide perpetuates the inequality that generally exists in access to economic opportunities, education, and health, thus explaining the higher income inequality and lower literacy levels among women. Alsan et al. (2017) allude to a strong relationship between gender inequality in financial inclusion and overall inequality [55]. The impact of the gender divide on financial inclusion is also affirmed by Delechat et al. (2018) [56]. Naumenkova et al (2019) assert that financial exclusion as reflected in the unbanked population is high in low- and middle-income countries [57]. The researchers while focusing on DFI, posit that poverty and inequality reduction are positively associated with ICT usage and dissemination. The use of DFSs is associated with the availability of digital infrastructure, especially for vulnerable groups. Kitzmann (2020) defines a vulnerable population as a group of people who do not have adequate documentation, the requisite capabilities, or opportunities to allow them to access financial services. Opportunities encompass cultural, social, political, economic, psychological, and physiological opportunities. Vulnerable groups, therefore, include the elderly, women, and girls, the unemployed, the homeless, prison inmates and immigrants, and the poor. Forty percent of the world's poorest people are in developing countries. Thus, ensuring financial and DFI in developing countries is critical for the realization of the SDGs [58].

While focusing on gender and DFI in Indonesia, Soekarno et al. (2020) established that while women experienced DFI in their daily activities, digital and financial education was fundamental to promoting DFI among women [46]. Focusing on mobile money taxation, [59], [60], [61] portend that mobile money and digital technologies have facilitated financial inclusion in developing countries such as Zimbabwe, Kenya, Brazil, Nigeria, India, and Cote d'Ivoire. While acknowledging that in SSA mobile money has made significant strides in financially including vulnerable groups of the population and enabling the processing of smaller transactions in less costly ways, Mpofu (2022), warns that mobile money taxes risk reversing the gains of financial and DFI in the continent, especially for vulnerable groups such as women and the youth as these taxes impact on usage, affordability, and access (costs of data and transaction costs), thus impeding DFI [59]. According to Mpofu and Mhlanga (2022), this is further worsened by digital services taxes such as taxes for swiping and making transfers (a good example being Zimbabwe's 2% and 4% Intermediate Monetary Tax on Transfers) on local currency and foreign currency transaction respectively [5]. Mpofu (2022) also alludes to the compounding effect of digital services taxes (DSTs), both direct [62] and indirect through value-added tax [63]. These taxes make digital devices and digital service platforms expensive, thus impacting affordability, access, and usage, thus affecting DFI for disadvantaged groups and increasing their vulnerability.

3.4. Gender Disparity, DFI, and the attainment of SDGs in Developing Countries

The SDGs were adopted in 2015 by the United Nations member states to focus on the planet (climate change and environmental impacts), the people (social goals, and welfare of citizens and governance), and prosperity (sustainable economic growth and development). The aim was to have the goals covering the three perspectives of the concept of sustainability (economic, environmental, and social). The countries involved sought to agree on ways to address the challenges that affect these countries on these three aspects of sustainability, considering these three dimensions are interlinked. These challenges discussed and coined in the SDGs include poverty alleviation, environmental sustainability, peace and justice, and economic development among others. The 2015 Agenda culminated in the 2030 SDGs that coalesced into the 17 SDGs. Due to the causality that emanates from the different dimensions of sustainable development, these goals are equally interconnected, pointing to the need to consider the causal impact in addressing them. Liyanage et al (2020) group the 17 SDGs as follows, seven from the social perspective of sustainable development (Goals 1,2,3,4,5,7,11, and 16), four from the environmental perspective (Goals 6, 13, 14, and 15), and five on the economic dimension (Goals 8, 9,

10 and 12). SDG 17 is considered the goal that links all the goals (governance) [64]. Sergeev et al (2021) group them in line with the sustainability dimensions as presented in Figure 3 [65].



Figure 3: SDGs and Sustainable Development Dimensions

Source: Sergeev, Arner and Charamba (2021) [65]

As presented in Figure 2, it is evident that some of the SDGs fall within the purview of more than one dimension of sustainable development. For example, SDGs 6, 11, 1, 2, 8, 5, 16, and 17 are featured in more than one dimension. Mpofu (2022) affirms the interconnectedness of the SDGs. The linkages can be briefly explained regarding a few of the SDGs. For example, SDG 4 is on promoting quality education that is inclusive and quality and provides everyone with lifelong learning. Education is critical to empowerment and economic growth. SDG 4 connects with the other 16 SDGs [59], [66]. For example, quality education is linked to poverty reduction, reduction in inequalities, and good decisions regarding health, safety, and well-being as well as informed decisions regarding finances and entrepreneurial opportunities [67]. Quality education can enhance productivity and economic growth, help in employment creation, more informed decisions regarding the preservation of clean water, and provision of sanitation and energy (SDGs 6, 7, and 8), thus leading to decisions that consider the environment (SDGs 13, 14 and 15), thus building strong communities and cities (SDG11). Education can promote, peace, justice, and partnerships necessary for the attainment of the SDGs.

In Nigeria, the financial inclusion gender gap among smallholder farmers was linked to legal, institutional, regulatory, and socio-cultural factors [68]. The researchers further point out that half of the smallholder farmers are women and argue that agriculture has a multidimensional role in economies and more so in the accomplishment of the SDGs. For example, agriculture affects food security, poverty alleviation, employment creation, reduction in inequalities, and the creation of employment as well as

economic growth, thus affecting not only SDG 5 but SDGs 1, 2, 8, and 10. Indirectly productivity in agriculture, the income generated as well as the agricultural methods used affect the other remaining SDGs. Income generated can be used to fund education, health, innovation, and investing in infrastructure, clean water, and energy, building strong communities, encouraging responsible consumption, promoting peace and justice, and partnerships for the goals (SDGs 3, 4, 6, 7, 9, 11, 12, 16, and 17). Agricultural processes and technologies would impact SDGs 13, 14, and 15. Adegbite and Machete (2020) therefore call for DFI and agricultural finance innovations that are responsive to gender. Therefore, FI and DFI of women can contribute indirectly or indirectly to the fulfillment of the SDGs in various ways, such as increasing the intrinsic value of women, increasing macroeconomic benefits, and helping in digital inclusion, allowing women access to digital technological advancements [68]. The benefits of DFI for women are discussed below.

3.4.1 Enhancing the Intrinsic worth of women

Eliminating gender bias in financial markets is linked to improving the intrinsic worth of women as it brings the empowerment of women and improves their well-being. Financial inclusion improves the role of women as family providers, asset owners, income earners, and traders. Enhancing their contribution and voice for decision-making through financial inclusion helps reduce the negative effects of masculine domination. Financial inclusion of women, therefore, brings social welfare improvements, self-confidence, and community enhancement advantages [52].

DFI is critical for women's empowerment and gender equality by giving women the capacity and opportunity to make decisions on savings, spending, investment, access to credit, and financial decisions for the foreseeable future [69], [70]. Having the power to make financial decisions for women is linked to poverty reduction, reduced costs, and risks of using cash, focused consumption decisions and increased bargaining power for women [52]. DFI allows women to maintain privacy and control of their income, economic power, and financial independence. Notwithstanding these envisaged benefits, it is important to emphasize that access to DFSs alone is not enough, there is a need for enablement to use these services by improving digital inclusion and digital financial literacy among women in developing and emerging economies, through digital and financial literacy programs. Women often lack financial literacy skills to manage their finances. The other challenge limiting the DFI of women is that financial services are often not tailored to suit the challenges limiting women from accessing financial services, particularly DFSs.

3.4.2 Macroeconomic benefits

DFI also brings welfare benefits for women. Family welfare is observed to be significantly, positively, and statistically influenced by the degree to which women are financially included [52]. Women invest more in children's well-being and family development. Other researchers argue that if the participation of women in the labor force was at par with that of men, economic growth and resilience would be significantly higher than the current status quo [71], [72]. Women tend to be more family-focused and development oriented in their expenditure. Kulkarni and Ghosh (2021) articulate that the contemporary arguments in support of women accessing DFSs are related to the growth or survival of women-led businesses [52]. Women having access to finance can expand their businesses and make informed financial decisions to support the going concern of their businesses. This growth in women's SMEs would stimulate economic growth, increase productivity, create employment, improve the stability of incomes, and increase GDP in developing countries [52], [73].

Additionally, the DFI of women supported by women empowerment programs can yield benefits for women, society, and the economy. Ghosh (2022) concludes that empowering women politically in India improved account activity by approximately 7% and this enhanced convenience in accounts usage by an additional 0.5%. Furthermore, the researcher emphasizes the need for policies customized to address the gap in financial inclusion recognizing the hindrances to FI and DFI faced by women in developing countries [7]. These constraints include having no assets for collateral purposes, weak bargaining power as well a lack of ownership of mobile and digital tools. Fareed et al. (2017) point out a positive relationship between the financial inclusion of women and women entrepreneurship in Mexico. Financial inclusion of women was found to be positively associated with women's entrepreneurship and can boost women's access to economic opportunities in Mexico [74].

The increase in account ownership and improvement in women's entrepreneurship not only benefits women economically but expands the customer base for financial service providers, and increases their market share and firm performance. This has wider impacts on the economy from poverty reduction, reduction in inequalities, employment generation, and stimulated economic growth, thus the achievement of some of the SDGs such as SDGs 1 to 12, 16, and 17. The other SDGs on climate (SDGs 6, 7, 13, 14, and 15) can benefit indirectly from improved economic growth and financial systems as revenue generated in the economy increases to fund environmentally oriented government expenditure or as communities get empowered and use resources optimally and sustainably, for example, clean energy use and investment in clean water and sanitation.

Suri and Jack (2016) linked the use of mobile money services to entrepreneurial growth as it helped approximately 185,000 women to either create their businesses or join the retail sector. These women opted out of employment in the agricultural sector. Such a contribution to employment creation or movement to decent jobs contributes not only to the betterment of the welfare of women but also to economic growth and the fulfillment of SDGs 1, 5, 8, 10, and 11 [75].

Giron et al (2022), while studying financial inclusion in less developed countries in Asia and Africa using the World Bank Data to forecast the probit econometric posit that digital literacy is important to drive measures to promote the financial inclusion of excluded populations. The researchers portend that women and young people are excluded from financial inclusion and that education is an important pillar of consideration in any efforts to expand financial inclusion for women. The researchers further articulate that financial inclusion is crucial for economic growth and development because it expands the level of official savings in economies, which ultimately drives their development [76].

3.4.3 Digital Technological Advancements

Access and exposure to DFSs could enhance the digital technological advancement and development of women, which can significantly alter the development avenues for women. Digital technological developments can minimize the gender gap in the workforce and improve service delivery as well as enhance the accessibility of digital services and reduce the time and costs of service provisioning and access. Therefore, DFI would help women minimize the impacts of constraints such as time, distance, costs, and other institutional barriers to accessing financial services [8], [77], [52].

Lee (2009) assessed the impact of digital inclusion on social inclusion in respect of four areas encompassing economic independence, fertility preferences, gender-based violence, and decision-making. Regarding independence when related to the use and ownership of mobile phones, the researcher concludes that owning a mobile phone reduces women's tolerance for domestic abuse and increases their independence in terms of economic and mobility autonomy [78]. Digital exclusion, therefore, impedes social inclusion, financial inclusion, and DFI. Lee (2015) advocated for digital literacy for improving digital inclusion [79].

4. Presentation and Discussion of Findings

This section discusses the results of the review as they relate to the challenges affecting the DFI of women in developing countries as well as how DFI inclusion or digital financial exclusion of women in developing countries would affect the accomplishment of the SDGs in developing countries.

4.2 Gender Divide, Financial Inclusion, DFI, and the implications for the attainment of SDGs in Developing Countries

The review established that addressing gender disparity concerning financial inclusion and DFI for women in developing countries was critical. It was evident from the review that the financial sector in developing countries is struggling with the impact of SDGs 5 and 10, gender equality, and reduced inequality respectively on the acceptance and usage of financial and DFSs among women. The impact of these goals threatens the achievement of these goals, other SDGs, and sustainable development. Sustainable development is defined as. Financial inclusion reduces gender inequality and poverty, while inequalities have negative effects on financial inclusion, suggesting a two-fold or reinforcing relationship. For example, Ohiomu and Ogbeide-Osaretin (2019) affirm this positing that low educational levels may harm financial inclusion and gender inequality [50]. Advocating for the financial

inclusion of women and its importance in the delivery of the SDGs, Mndolwa, and Alhassan (2020:578) portend “The importance of achieving gender disparity is supported by literature which shows that consumption behavior of women and men differs, such that women in control of their household resources, prefer to spend more on necessities such as food, children’s education and health compared to, thus increasing the welfare and productivity of their families and communities” [51].

From this articulation, financial inclusion and DFI would promote SDGs 1 to 11. Therefore, gender equity and empowerment of women are not only fundamental to the fruition of SDG5 and 10 on gender equality and minimization of inequalities, but all other SDGs. DFI for women can be considered as a ‘distributed’ or integrative priority for both public and private stakeholders as there are envisaged economic and social benefits of financially empowering and including women that cut across economies and societies.

Even though none of the SDGs speak directly to finance, the role of finance and digital finance cannot be separated from the achievement of the SDGs. For example, poverty and hunger reduction require finance as well as the provision of quality education and health, gender equality, creation of jobs, building strong communities, ensuring peace and justice, provision of clean energy, sanitation, and water together with environmental preservation efforts. Effectively all SDGs require financing. Despite the SDGs not referring to finance, the target goals address finance and financial services and instruments. Some of the target goals focus on aspects such as deposits, credits, loans, subsidies and pensions, payables, and receivables as enablers to the achievement and implementation of the 2030 Agenda. This is alluded to in the literature by Ferrata (2019) [8].

Financial inclusion of women is therefore important for the accomplishment of the SDGs in developing countries due to the various implications associated with access to finance by women. The implications are at the household level (family) and national level (sustainable economic development). These implications are highlighted by Emara and Mohieldin (2021) while focusing on Middle and East African countries. The researchers argue that when women are financially included and have control of finances, they promote investment in education and learning opportunities leading to them having access to formal employment or them creating employment through entrepreneurship or digital entrepreneurship. Emara and Mohieldin (2021) further state that with access to finance women contribute to poverty-reducing activities such as food procurement, investing in health, and enabling access to clean water and energy by paying utility bills or paying to have these activities connected to their residences [37]. These submissions speak directly to some of the SDGs, for example, SDGs 1 to 12. In concurrence, while focusing on how the gender gap in the digitalization of financial services affects financial inclusion in India, specifically on the opportunities and constraints, Kulkarni, and Ghosh (2021) state that DFI through the digitalization of financial services can enhance women’s financial and social autonomy [52]. Velden (2018) posits that digital finance can expand the financial inclusion of the 1.7 billion people financially excluded in developing economies, with more than half of the being women [80].

Table 2: Summary of SDGs and Target Goals on Finance and Women and DFI

SDG and Target goal	Articulation of the role of financial inclusion or DFI	Women and DFI in advancing the SDGs
1: Eradicating Poverty (1.4)	Access to financial services including credit is essential for everyone (financial inclusion and DFI in this digital era)	Women invest more in family welfare, thus access to financial services through digital means can empower to reduce poverty in families, communities, and developing countries.
2: Ensuring Zero hunger (2.3)	Facilitating increased agricultural productivity as well as income of smallholder farmers by having connected access to financial services (financial inclusion).	Having access to finance could help women procure agricultural inputs and invest in the requisite infrastructure, thus increasing productivity and income, thus reducing hunger and poverty.

3: Promoting good health and well-being (3.8)	Having access to medical insurance can improve access to health and reduce related risks	Improving women's access to financial services might help them save for health needs and invest in health insurance, thus improving access to health for them and their families.
5: Addressing gender equality (5. A)	Advocates for reforms that provide women with equal opportunities to have access to financial services (financial inclusion for women and girls).	Reforms that provide women and girls with equal opportunities for education and financial services would not only improve literacy and financial literacy levels among women but empower them to have financial autonomy in spending, investing, and saving.
8: Facilitating economic growth and decent work (8.3 and 8.10)	Construction of development-oriented policies, ensuring the creation of decent employment and the growth of micro, small and medium enterprises. In, addition, the need to enhance the capacity of financial institutions to promote financial inclusion (access to financial services, banking, and insurance for all citizens (is measured using the number of bank branches, number of ATMs, and accountholders (both banks and mobile money)).	Ensuring the growth of women entrepreneurship and women-led SMEs through access to funding and better financial management skills might enhance the expansion of these SMEs, their productivity, and their contribution to employment generation. DFSs and mobile money have been identified to contribute positively to economic growth and employment creation in Africa and other developing countries [66].
9: Industrialization, innovation, and building resilient infrastructure	Promoting access to financial services including access to affordable credit by small and medium enterprises. This is measured by the number of small businesses with access to loans and other lines of funding.	Access to financial services, better financial management skills, digital financial literacy improvement, and access to credit by women might contribute to industry growth, innovation, and the building of resilient infrastructure
10: Reducing inequalities (10.5)	Acknowledging the need for and importance of enhancing regulation and oversight of financial institutions and risks globally to reduce inequalities.	Improve regulation and control builds trust in institutions and in this case financial institutions and DFSs which is key to the DFI of women. Women will be more comfortable using financial services thus reaping the benefits of financial and DF discussed throughout the review.
16: Promoting peace, justice, and building strong institutions (16.4 and 16.5).	The focus is to ensure a reduction in illicit financial flows (IFFs) by 2030 as well as lowering the levels of bribery and corruption	The reduction in illicit flows, bribery, and corruption would reduce the exploitation of women and avail more disposable income for them
17: Ensuring Partnerships for achieving the goals (17.1 and 17.3)	To ensure domestic mobilization of resources and ensuring international support for developing the domestic revenue mobilization capacity through taxation and other revenue mobilization avenues. In addition, facilitates the mobilization of financial resources for emerging economies from an array of diversified sources.	Women would benefit from effective domestic revenue mobilization and government spending. If also adequately empowered they can contribute to enhancing domestic revenue mobilization through taxes such as employment tax, corporate tax, and VAT

Source: Own Compilation Based on Ferrata (2019) [8].

While Table 2 summarizes the critical role played by finance, financial inclusion, and DFI in the attainment of nine of the 17 SDGs, it is important to point out that these nine SDGs speak to the reference to finance made in the targets for accomplishing the goals, but all the 17 SDGs require sustainable financing and financial inclusion to achieve them. The nine SDGs abridged in Table 2 focus on three main areas, these are improvements in the welfare or standard of living of people (reduction of poverty (1) and hunger (2) and promotion of good health (3)), economic development and reduction of inequalities (SDGs 5, 8, 9, 10, 16 and 17) as well as ensuring social justice and fairness. The last aspect of justice calls for focused and developmental aid, cooperation as well as transparency, and accountability in the use of resources (SDGs 5, 8, 10, 16, and 17). As explained earlier, financial inclusion and DFI as they relate to the gender gap touch on all SDGs, directly and indirectly. Attainment of all the SDGs needs financing and considering the overlaps and interlinks that exist the SDGs cannot be discussed in isolation. The role of women and DFI in delivering the SDGs précised in Table 2 for the nine goals gives a clear picture of the intertwining in efforts and outcomes of efforts towards the realization of SDGs.

4.3. Discussion of Findings

The implication of financial inclusion and DFI of inclusion of women can be discussed concerning the creation of a customer base for financial institutions, the risk assessment nature of women, improvement in family welfare, and sustainable economic development

4.3.1 Creation of Customer Base for financial institutions

Through the financial and DFI of women, financial institutions would find a potential market and increase their revenue and profitability by serving this underserved market (women). Through DFSs financial institutions can be able to process the high-volume but small-value transactions that are linked to vulnerable groups such as women and do so profitably at low operational costs. Fintech and the use of the Fourth Industrial Revolution tools such as machine learning, artificial intelligence, blockchain, big data, and cloud computing among others reduce operational costs, increase speed and accuracy, reduce serving time and settlement period, improve access and affordability, and reduce geographical distance barriers. This could increase the customer base, improve profitability, and firm performance, and ultimately contribute to economic growth and the attainment of the SDGs.

Women provide a steadier and more diversified “retail deposit base” as they tend to save more than men and are involved in diverse income-generating activities such as farming, vending, dressmaking and others.

4.3.2 Improvement of family welfare

Women prioritize family welfare more and will re-invest nearly 90% of their income on household expenditures (education, family assets and development, health, and savings) as compared to men who are approximated to only re-invest 30 to 40% of their income [51]. Therefore, financial inclusion of women does not only address the SDGs such as education, health, economic growth, infrastructural development, reduction of inequalities, and building of strong and sustainable communities but also contributes to sustainable development or sustainability (that advocates for responsible use of resources to leave some for the future generation).

4.3.3 Risk assessment

Women are generally precautionary beings and tend to be conservative in their investment decisions, accessing funding decisions, and general spending. Additionally, women are risk averse therefore they tend to save more than men as they generally consider the possible change in income patterns due to unfortunate events or events that can disturb their ability to earn income or save. Events such as divorce, loss of employment, sickness, or childbirth. Events such as divorce, and childbirth broaden the gender gap in savings. Women tend to look out for the future and will not want to use DFSs that can expose them to risks, thus they are more prudent in taking loans and in avoiding over-indebtedness. They tend to take on loans that they can service. This does not only protect the family's income, welfare, and financial reputation as well as protect them from further plunging into poverty but also contributes to the stability and performance of financial institutions. The risk averseness of women leads to the

avoidance of non-performing loans that might affect the operational costs, financial performance, and profitability of financial institutions.

4.3.4 Improvement in Productivity, Economic Growth, and Sustainable Development

According to Ghosh (2013), the performance of informal firms headed by female entrepreneurs in India tends to perform better than men-led ones. Considering entrepreneurship, SMEs and the informal sector are the backbones of most developing countries, empowering women entrepreneurs financially is crucial for the expansion of small firms, enhanced productivity, and facilitating economic growth through employment creation, poverty reduction, and growth in incomes [17]. The growth in incomes in the informal sector especially for women is vital as they tend to invest in education, food, health, and development. This addresses nearly all the SDGs. Ghosh (2022) advocates the empowerment of women in the political, social, and economic dimensions to attain SDG5 and all other SDGs. Furthermore, Ghosh (2022) articulates that the political empowerment of women affects the women's level of tolerance of gender-based violence, access to public goods, access to economic opportunities and development as well as human empowerment [7]. These are key drivers of digital, social, and financial inclusion, ultimately for DFI. Therefore, there is a need to close the gender gap in access to credit and savings, which reflects that men are more financially included than women.

5. Conclusions, Limitations, Suggestions of Further Research, and Recommendations

This paper discussed gender disparity concerning financial and DFI inclusion in developing countries. The paper further assessed the factors affecting the gender divide and DFI in developing countries and how these factors and the gender gap were affecting the attainment of the SDGs in developing countries. The research found that gender disparity in developing countries was influenced by socio-economic, socio-cultural, literacy, digital, social, and financial inclusion or exclusion, taxation of DFSs and digital platforms, regulation in the financial services sector, and institutional factors. Additional factors included the lack of trust in DFSs, lack of empowerment of women, information asymmetry, and risks linked to the usage of DFSs. The paper also established that it will be rather illogical and inadequate to only explore gender disparity in DFI without paying attention to the interconnectedness of digital inclusion, financial inclusion, and social inclusion and how the interlinkages impact the gender divide concerning DFI. In conclusion, it was apparent that the relationship between DFI and the attainment of SDGs in developing countries is intricately connected and opaque. This is more so considering that the SDGs are inextricably intertwined and complicated. The paper suggests that to achieve DFI for women and maximum benefits of DFI on the attainment of the SDGs, there is a need for cooperation, coordinated efforts, and gender-sensitive efforts by various stakeholders such as governments, regulatory authorities, and financial services providers to deliver inclusive digital finance that is not only inclusive but gender accommodative. The study showed the interconnectedness of the SDGs and how access to financial services and DFSs by women can contribute to the attainment of the SDGs, possibly all the SDGs because financing is key to addressing the SDGs. This research focused on gender disparity and DFI in developing countries, future researchers could focus on the role of literacy on DFI by focusing on the four dimensions of literacy identified in research (general, financial, digital, and digital financial literacy). Even though this research centered more on SDGs 1 and 10 on gender inequality and reduction of inequality, it showed the interlink of these objectivities relating to inequality specific to women and the fruition of all the other SDGs, future research can focus on DFI and the SDGs in general without linking it to women.

5.1 Recommendations

- **Address the socio-cultural and socio-economic challenges to DFI**

Improve access to education for women to improve digital and financial literacy

- **Initiatives to Widen Digital, Social and Financial Inclusion for Women in Developing Countries**

Training programs, and educational and awareness initiatives to broaden digital education and digital financial education. There is a need for developing countries' governments and financial institutions to increase digital financial education among women. The realization of governments, financial institutions and other stakeholders of the role played by women in positive consumer behavior, household financial management, productivity, economic growth, and the attainment of the SDGs must be a motivating factor.

- **Assessment of the Interconnectedness of the SDGs and their Relationship with the Sustainable Development Dimensions**

Addressing SDGs 5 and 10 only as they relate to DFI is not sufficient to improve financial inclusion or DFI or their contribution to the fruition of the SDGs. It is fundamental to realize that the SDGs are intertwined and how they are addressed and the outcomes of efforts to address them individually or in their totality are interconnected and affect the three dimensions of sustainability (social, economic, and environmental), which are interlinked. Affirming this interconnectedness, Stafford-Smith et al (2017) articulate that “there needs to be a greater focus on the interlinkages in the three domains: across sectors (such as finance, agriculture, energy, transport, and education, among others) across societal actors, (such as local councils, governmental organizations, private industry, and civil society and between and among low income, middle income, and high-income countries” [81].

Given the observations of the intertwining of the SDGs, governments, development bodies, civic organizations, and commercial institutions need to appreciate the causality and complementarity of these SDGs and these stakeholders' actions toward the attainment of the SDGs. The interlinkages between the economic, social, and environmental dimensions of the SDGs need significant assessment to avoid short-term achievements of some of the goals but with long-term damaging impacts or diminishing returns for others. For example, concerning DFI and SDG5, while in addressing gender equality if access to DFSs is advanced but not appropriately supported by digital and financial literacy programs the same efforts to address SDG 5 might harm SDGs 1 to 12 and 16. Women might be overly indebted and leading to non-performing loans and high default risks threatening SDGs 16 and the stability of financial institutions. Additionally, the complexity of digital financial services platforms coupled with digital illiteracy might expose women to risks of fraud, identity theft, and financial loss among other risks thus negatively impacting other SDGs.

- **Consider Incorporating the use of local language in DFSs**

As discussed in the literature that literacy levels are low among women in developing countries due to socio-economic and socio-cultural constraints engraved in some societies, and their appreciation of English is low. Therefore, in addressing the challenges of affordability, access, and usage associated with traditional financial services and financial inclusion, DFSs bring on board the complexity, language barrier, and digital exclusion challenges. Interactions such as marketing, confirmations of transactions through messages and emails as well as instructions on digital services platforms such as digital banking and cellphone banking are in English, yet the target population is diverse including the highly educated, semi-illiterate, and illiterate, thus leading to digital financial exclusion for the uneducated and less educated groups. To address this challenge financial institutions perhaps need to incorporate local languages in digital platforms alongside the instructions in English. This could improve customer and service provider interaction through platforms such as chat boxes and reduce aggressive marketing by service providers as well as reduce over-indebtedness and improve the acceptance, trust, and usage of DFSs among those with low literacy levels. The challenge though will be the diversity in local languages as well as the associated costs of translation. The costs associated with translating content from the English language to local languages have been described in the literature as a key factor in determining the willingness and degree to which businesses can incorporate local languages into digital platforms [82]. DFSs would accordingly have to do a cost-benefit analysis. The costs might be high in the short run but the benefits much greater in the long run with increased

trust and customer loyalty, increased usage and market share, reduced costs, and improved profitability including a reduction in risks and errors due to low levels of literacy.

- **More Research**

There has been concern among researchers on the gender divide and financial and DFI that there is a paucity of research that addresses this important topic in developing countries. Affirming this concern, Gammage et al. (2017:21) state “Access to financial and digital financial inclusion by women has been significantly understudied in the Middle East and North Africa” [16]. This indicates the need for more research in the subject area. Additionally, labor market participation, voice, physical mobility, societal norms, and values define gender roles and responsibilities in society, and these have an impact on financial and DFI inclusion. Therefore, more research on these factors as they affect DFI is necessary to improve access to financial services and DFSs in this MENA region and other developing countries and to inform policy prescriptions that appropriately address these financial and DFI constraining factors. Lastly, there is a need for more research on the political empowerment of women as well as the economic empowerment of women in developing countries from both the financial and DFI perspectives. This is especially on how DFI can facilitate women’s empowerment and agency roles at the household level (family), community, business level, and national level as well as in the global space. This is because empowerment is key for bargaining, decision-making, improving human skills and capabilities, savings, asset accumulation, and workforce participation.

Conflicts of Interest

None.

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