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Empowering Sustainable Development: The Role of Financial Literacy and Social Capital in Bridging Financial Inclusion in Developing Nations.

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ABSTRACT

Purpose- This paper investigates how financial inclusion impacts sustainable development in Pakistan, with financial literacy and social capital as mediators. The purpose is to explore whether these factors are connected and what this link means for more inclusive and sustainable growth.

Study Design/methodology/approach – A quantitative research design was adopted, which was based on data gathered through a structured questionnaire survey of 488 banking customers in Pakistan. Data were analyzed through structural equation modeling (SEM) using PLS4-SEM software to assess the direct and indirect relationships between financial inclusion, social capital, financial literacy, and sustainable development.

Findings- The findings suggest that financial inclusion positively and significantly impacts sustainable development. Financial literacy and social capital are demonstrated to play a mediating role in enhancing the pathway between financial inclusion and sustainable development. The findings show that increased financial inclusion improves financial literacy and social capital, hence promoting better economic, social, and environmental sustainability outcomes.

Research limitations/implications – This study adds to the insights of the policymakers and financial institutions that help achieve sustainable development goals (SDGs). Its major implication for policymakers and financial institutions in Pakistan is that strategies that will lead towards enhancing access to banking services, promoting more financial literacy initiatives, and developing social cohesion are essential drivers of inclusive and sustainable development in Pakistan.

Research Practical Implications- The study advocates for corporate governance reforms and policy interventions to prioritize human talent capital investments. Financial strategies such as maintaining liquidity and managing leverage are recommended to stabilize firm volatility.

Originality/value- This research contributes to the existing literature by providing a detailed analysis of the synergistic relationship between financial inclusion, social capital, and financial literacy in the context of sustainable development. It offers a robust empirical framework for addressing development challenges in emerging economies, with a focus on actionable strategies for achieving SDGs.

Keywords: Financial Inclusion, Social Capital, Financial Literacy, developing economy

JEL Classification Codes: G21, Z13, D14, O10

1 | INTRODUCTION

Financial inclusion (FI) is one of the most important enablers of sustainable development (SusD) because it provides access to financial services that empower marginalized communities. In Pakistan, rural-urban disparities are stark, with a 60% poverty rate in rural areas and only 15% in urban areas (World Bank, 2023). These statistics underscore the need for targeted interventions to bridge the financial divide. This paper explores the dynamics of FI, FL, and SC, looking into their combined impact on SusD.

The global financial meltdown of 2009 and the recessions that followed presented significant challenges to the Asian region, specifically Pakistan, and affected the pursuit of the Millennium Development Goals (SDGs) (Ramzan et al., 2021). Pakistan's journey towards sustainable development (SusD) has been hindered by factors like poverty, limited access to financial resources and education, as well as legislative constraints. Progress towards achieving universal access to foundational education, as indicated by social indicators, has been inadequate in Pakistan (Ratnawati, 2020). The World Bank highlights the nation's pronounced socioeconomic disparities, reflected in an approximate 60% rural poverty rate and a 15% urban poverty rate. These inequalities are vividly mirrored in poverty statistics and the advancement of the SDGs (Abbasi et al., 2022). Based on the CPIA macroeconomic score indicators from the World Bank, Pakistan continues to lag behind the global average concerning adherence to SDGs, notwithstanding notable enhancements in policies and institutional frameworks in 2018 (Kemal, 2019).

The government is rapidly combating this concern by promoting private-sector involvement to foster economic growth and diversification, by working with several organizations, groups, and regulators. However private sector organizations tend to focus on nutrition and healthcare, neglecting important areas like education and financial inclusion (Rasheed et al., 2019). The UN created the SDGs to supplement the unmet MDGs. In pursuit of economic growth and sustainable development, numerous developing nations, with Pakistan in focus, have devised strategies to combat poverty and other societal challenges among their populace (Hussain et al., 2021). Financial inclusion (FI) stands as a pivotal aspect highlighted by scholars, exerting substantial influence on the economies of many emerging countries, including Pakistan. Consequently, a significant scholarly emphasis is placed on themes encompassing financial inclusion (FI), financial literacy (FL), and the trajectory of SusD.

FI ensures that financial services and products are accessible and available to all of society, especially to those groups who have traditionally faced discrimination by financial institutions regarding these services (Ramzan et al., 2021). The capability to effectively manage financial matters, save funds, engage in transactions, and access credit and insurance facilities hinges upon individuals and communities having access to cost-effective, reliable, and convenient financial services (SINGH et al., 2022). Conversely, financial literacy (FL) encompasses the knowledge, skills, and understanding necessary for making well-informed financial decisions. This includes having the necessary knowledge and skills to successfully handle personal money, create plans for the future, and negotiate the complications of the financial environment (Goyal & Kumar, 2021). The base of financial literacy stands on basic financial ideas like saving, borrowing, debt management, investing, and budgeting. One also needs the capacity to interpret financial statements, understand the subtleties of financial services and goods, and act wisely in light of these revelations (Alshebami & Aldhyani, 2022).

Social capital (SC) merges the complex web of interactions, networks, and social connections with group values and benefits in a particular cultural context or community. It considers essential norms, trust fostering cooperative behavior, social transactions, reciprocal exchanges, and mutual support in both individuals and groups (Mubarak et al., 2021). The cultivation of social capital is facilitated through social engagements found in friendships, familial relationships, communal affiliations, and participation in social institutions. Such investments in SC yield dividends that accrue to both individuals and the broader community (Neaime & Gaysset, 2017). In contrast, the philosophy of SusD underscores the imperative of synthesizing environmental, social, and economic considerations to achieve an equilibrium between the exigencies of the present and the imperatives of the future (Hussain et al., 2021). This comprehensive developmental approach entails meeting the immediate needs of the current generation while concurrently safeguarding the capacity of future generations to fulfill their own needs, thus engendering a harmonious interplay between generations (SINGH et al., 2022).

In the contemporary economic landscape, possessing financial literacy is of paramount importance for individuals to attain and uphold their well-being, particularly among the younger generation (Goyal & Kumar, 2021). Within the realm of scholarly literature, specific studies have illuminated those numerous emerging economies grapple with intricate macroeconomic challenges, spanning from disparities in financial stability that exacerbate income inequality to entrenched issues of extreme poverty and unemployment (Enowbi Batuo & Asongu, 2015; López & Winkler, 2019). Financial inclusion (FI) has emerged as a strategic avenue for expanding the accessibility of financial services across diverse societal segments. Recent scholarly discourse has actively engaged with FI as an economic subject of inquiry (Park & Mercado, 2021; UNCTAD, 2015). Thus, the impetus behind FI is to encourage individuals from marginalized backgrounds to leverage financial services. Furthermore, FI has progressively evolved into a policy tool aimed at attaining multifaceted macroeconomic objectives. In this vein, FI not only fosters savings and enhances financial stability but also fosters the fluidity of capital and propels economic growth, all in the pursuit of achieving sustainable development (Morgan & Pontines, 2018; Sobiech, 2019).

Sustainable development involves a balanced and integrated approach to economic, social, and environmental goals, seeking to meet the needs of the present without compromising the ability of future generations to meet their own needs. SusD, although often perceived as a macro-level concept, can also be comprehended at the micro level, paralleling the concepts of FI, FL, and SC. This nuanced perspective emerges from previous research studies that have interlinked these dimensions across diverse domains (Castells-Quintana et al., 2019; Kim et al., 2018). Furthermore, Castells-Quintana et al. (2019) emphasize that the human development index stands as a potent yardstick for measuring progress, serving as a surrogate indicator for sustainable development. This composite index takes into account pivotal factors such as life expectancy and literacy rates, which exert influence on productivity and have the potential to foster equitable economic advancement. Elaborating on this, Luetz and Walid (2019) elucidate that the human development index extends opportunities encompassing employment, education, healthcare, and environmental preservation. Notably, individual perceptions can serve as a metric to assess the multifaceted aspects of sustainable development.

Despite significant progress, inconsistencies in the literature persist regarding the relationship between FI and SusD. Previous studies have largely ignored the mediating effects of FL and SC, especially in the context of developing nations like Pakistan. This gap requires a comprehensive examination of how these variables interact to foster inclusive growth. While there is extensive research on financial inclusion (FI) and sustainable development (SusD), a knowledge gap exists in understanding how these concepts are interconnected. Most studies treat them separately, overlooking potential mediating factors. This study aims to fill this gap by investigating how FI influences SusD in Pakistan, focusing on the roles of financial literacy (FL) and social capital (SC). It provides evidence-based guidance for global policymakers and practitioners in inclusive, sustainable economic development. It offers well-founded guidance for policymakers and practitioners working towards advancing inclusive and sustainable economic development on a global scale.

1.1 | Theoretical Support

The present study is grounded in a robust public theory of financial inclusion (FI), which falls within the spectrum of theories benefiting FI recipients. There exist diverse perspectives on who reaps the advantages of FI. A mounting body of evidence suggests that individuals with lower economic means are the primary beneficiaries of FI (Bhandari, 2018). Conversely, scholarly literature suggests that women tend to be the most prominent beneficiaries of FI outcomes (Demirgüç-Kunt et al., 2013; Ghosh & Vinod, 2017; Swamy, 2014). Various studies have debated for national economy and the financial industry ultimately standing to gain the most through FI. (Kim et al., 2018; Mehrotra & Yetman, 2015; Ozili, 2018, 2020). In addition to women and economically disadvantaged individuals, the literature has paid limited attention to two demographic groups: the youth and the elderly. There is also a dearth of research addressing individuals who have been excluded from the financial sector, possibly due to past criminal activities and institutionalization.

Following the theoretical framework, formal financial services are considered a public good that should be universally accessible for the collective benefit of society. Thus, it is proposed that unrestricted access to finance should be available to all individuals. According to previous literature, the availability of formal financial services as a public good allows everyone to have equal access to the same. It therefore is urged that every aspect of society be incorporated into the formal financial sector, for the collective benefit of the society. Based on this theory, financial inclusion (FI) benefits every member of the population, and it is unwelcomed for any individual to be marginalized (Ozili, 2020). Taking from this discussion the good public theory of FI gives an initial basis for understanding the theoretical model of the present study. The main goal of this study is to uncover the link between FI and SusD incorporating FL and SC as mediators in the context of Pakistan.

As previously mentioned, FI is centered on the provision of accessible formal financial services to all individuals and businesses. On the other hand, SusD seeks to fulfill present needs without compromising the ability of future generations to do the same (Rees, 1989). SusD encompasses three primary pillars: economic, environmental, and social dimensions (Alaimo et al., 2021). The domains where FI and SusD engage are their economic and social aspects. Because financial institutions are capable of reaching out to unbanked portions of the community through projects like account ownership programs and affordable financial services, the economic dimension of SusD falls in line with FI. It allows them to enhance the public's financial well-being. These positive economic results can accelerate economic growth and generate jobs, ultimately working towards the main objective of sustainable development.

Conversely, the social dimension of SusD intersects with FI. This happens as financial institutions are obligated to attend to financially included individuals with dignity, attention, and fairness, particularly when it pertains to the reasonable pricing of essential financial services and goods. As a result, a substantial link between FI and SusD is formed whenever FI policies are executed by financial institutions operating within the established social and economic structures that are necessary for SusD. Recent research states that a significant proportion of the African population continues to endure financial exclusion (Tchamyou, 2020; Tchamyou et al., 2019). Therefore, for the promotion of economic growth and sustainability, the theory underlines the importance of giving excluded groups like women and the poverty-stricken, unlimited access to financial services.

The research draws on the Financial Behavior Theory and Human Capital Theory to conceptualize the relationships between FI, FL, SC, and SusD. These frameworks provide a lens to understand the mechanisms driving financial empowerment and its broader implications.

Figure 1

Research Model

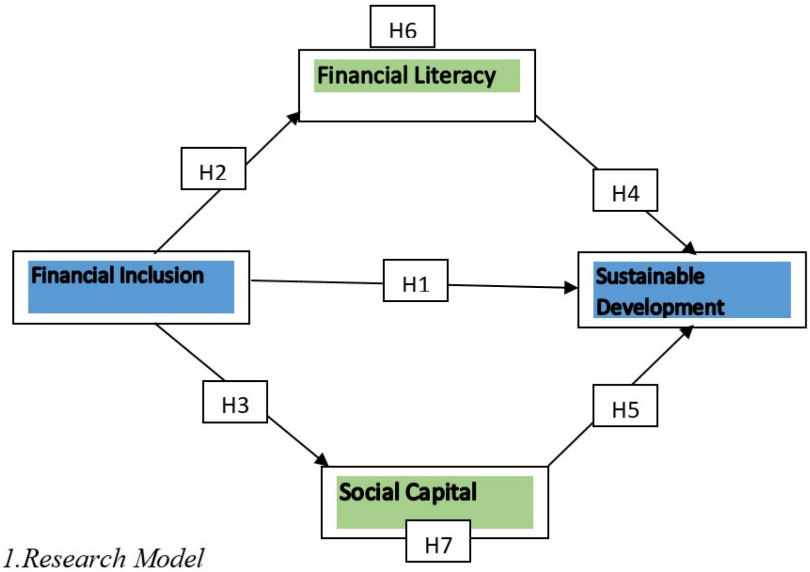


Figure 1.Research Model

2 | LITERATURE REVIEW

Financial inclusion, the access to and use of formal financial services by previously excluded populations has emerged as a vital instrument for promoting sustainable development. The concept is rooted in the understanding that equitable access to financial resources, coupled with the ability to effectively manage those resources, can empower individuals and communities to break the cycle of poverty, foster entrepreneurship, and drive inclusive economic growth and sustainable development. However, the pathway through which financial inclusion influences sustainable development is complex and can be further elucidated by considering the roles of financial literacy and social capital.

2.1 | Impact of Financial Inclusion on SusD

Financial inclusion (FI) is the backbone for the attainment of the United Nations Sustainable Development Goals (SDGs), particularly poverty reduction, gender equality, and economic growth. According to the United Nations (2023), FI makes it possible for underprivileged sections of society to gain access to affordable financial services that empower them economically and build their resilience. Studies conducted by Demirgüç-Kunt et al. (2022) found that higher FI rates correspond with greater economic stability and reduced income inequality among nations. However, the impact of FI on the environmental and social dimensions of sustainable development remains relatively underexplored, particularly in developing nations.

Both academic scholars and policymakers have recently begun to pay more attention to the link between FI and sustainable development (SusD). A substantial and expanding body of research indicates that access to a broad variety of formal financial services by people and enterprises promotes economic growth, job creation, and poverty alleviation. Furthermore, FI has shown itself to be a useful tool for achieving sustainable development objectives, including improved environmental management and climate change mitigation (Ratnawati, 2020). There is a growing body of studies showing how important easily accessible and appropriate financial products and services are for promoting economic growth and improving societal well-being (Goyal & Kumar, 2021; SINGH et al., 2022).

Khan et al. (2022) conducted a systematic review focused on the influence of FI on environmental outcomes data depicts that people with access to formal financial services are expected to practice environment-friendly practices, such as adopting alternate means of transportation, saving water and electricity, and creating less trash. The magnitude of FI in the war against adverse climate change is also being emphasized by an ever-growing body of research. This is supported by Park and Mercado (2021), whose study detected that a decrease in carbon emissions from companies was encouraged by increased access to microcredit.

A study by Sarma and Pais (2011) researched FI in terms of India's progress. Their study focused on assessing the relationship between FI and national development as an entire. With a couple of limitations, the findings showed a significant relationship between FI and the nation's degree of human development. It has been stated that FI assists boost financial stability, reduces income inequality, and decreases poverty ultimately raising economic growth.

From the discussion, the research draws the following hypothesis:

H1: *Financial inclusion considerably influences SusD in Pakistan.*

2.2 | Impact of Financial Inclusion on Financial Literacy

Expanding access to banking and other financial services to all segments of society, including disadvantaged and low-income groups, is referred to as financial inclusion (FI), while financial literacy (FL) refers to possessing the information and abilities required to make wise financial decisions. An increasing amount of research emphasizes how important easily accessible and appropriate financial products and services are for promoting economic growth and improving the well-being of society (Ramzan et al., 2021; SINGH et al., 2022). Numerous studies have investigated the correlation between financial illiteracy and financial inclusion, with substantial evidence indicating a meaningful connection between these two aspects. This suggests that financial illiteracy is a notable obstacle to achieving financial inclusion (Akhtar & Liu, 2018; Alshebami & Aldhyani, 2022; Goyal & Kumar, 2021). A previous study López and Winkler (2019) discovered that individuals who have used a savings or checking account over the past year had a higher possibility of being financially literate in opposition to those without an account. Kou et al. (2021) in their study state that accessing financial services is challenging, the very reason for both national and international organizations to account FL as an essential part of financial inclusion. Furthermore, Shen et al. (2020) demonstrated that apart from internet usage, a statistically significant association exists between the utilization of digital financial products and levels of FL. Their study also revealed a strong positive association between financial knowledge and account ownership.

According to research, having access to formal financial services helps people manage their money more effectively and build up assets over time, which can help end the poverty cycle and increase economic security (Hussain et al., 2021; Kemal, 2019). Thus, we posit the following hypothesis:

H2: *Financial inclusion considerably influences financial literacy in Pakistan.*

2.3 | Impact of Financial Inclusion on Social Capital

Several previous studies have also discussed the connection between financial inclusion (FI) and social capital (SC). SC represents the social resources and connections that individuals and groups can leverage for various purposes, including personal and collective benefits. (Sha'ban et al., 2021) claim that FI promotes SC by giving people chances to engage with one another and build trustworthy relationships. By expanding access to financial products and services, FI has been shown to facilitate people's participation in exchanges that promote cooperation and trust (Enowbi Batuo & Asongu, 2015). In addition, Ramzan et al. (2021) explored how SC is impacted by FI and recognized the limits of earlier research, recommending further investigation. Numerous studies have shown that social capital and financial inclusion are positively connected. Neaime and Gaysset (2017) concluded that FI improves social capital by cultivating trust and cooperation among communities. Along with this social cohesiveness and trust are enhanced by financial accessibility. Furthermore (Mubarak et al., 2021; Pitas & Ehmer, 2020) provide empirical evidence that microfinance programs have the potential to improve social capital.

There are multiple ways that FI influences SC. One important way is that FI fosters the development of solid social bonds within local communities. This is because technology makes it possible for people to communicate more often and build closer bonds with one another (Kemal, 2019).

H3: *Financial inclusion considerably influences social capital in Pakistan.*

2.4 | Impact of Financial Literacy on SusD

To achieve sustainable economic growth, it is essential to have a capacity for sound financial decision-making. Long-term economic growth may be hampered by unsustainable borrowing and spending patterns brought on by a lack of financial literacy (FL). The relationship between FL and sustainable development

(SusD) was examined by Ye and Kulathunga (2019), who also highlighted the information gaps that still need to be filled and discussed the main conclusions of empirical research on the subject. FL includes a variety of abilities, such as the capacity to comprehend financial ideas, form wise opinions on financial items, and efficiently handle finances. Long-term economic growth may be hampered by unsustainable borrowing and spending patterns brought on by a lack of FL (Goyal & Kumar, 2021). Likewise, lower income inequality and quicker rates of economic growth are linked to higher FL levels. This indicates that finance programs that use enhanced FL to single out low-income groups can have a major impact on SusD results (Alshebami & Aldhyani, 2022; Ye & Kulathunga, 2019). Therefore, to find highly effective strategies for elevating economic sustainability, further study on the relationship between FL and SusD is required (SINGH et al., 2022; Ye & Kulathunga, 2019).

H4: *Financial literacy considerably influences sustainable development in Pakistan*.

2.5 | Social capital positively impacts SusD in Pakistan

Various studies have for decades shown interest in the relationship between social capital (SC) and sustainable development (SusD). When used constructively, SC can be the foundation of individual connections and exchanges that benefit society as a whole. SusD is the ability of humans to satisfy their wants without causing harm or exhausting the resources of the planet (Pitas & Ehmer, 2020). SC can support SusD in several ways, for instance by fostering communication, and solidarity within the community, and through collective action. Although SC can have a beneficial influence on sustainability, there may be particular drawbacks to take into account. One major concern is that SC can cause division and conflict if it is not handled well (Mubarak et al., 2021). Additionally, the difficulty in quantifying and measuring SC poses challenges in assessing its impact on sustainability (Neaime & Gaysset, 2017).

H5: *Social capital considerably influences sustainable development in Pakistan.*

2.5 | Mediating Effect of Financial Literacy on Relationship between Financial Inclusion and SusD

Financial literacy (FL) enhances the advantages of financial inclusion (FI) by equipping individuals with the knowledge to make informed financial choices. According to Lusardi and Mitchell (2011), FL is essential for effectively utilizing financial resources, avoiding over-indebtedness, and promoting long-term financial planning. In Pakistan, low levels of FL, especially among rural communities, have limited the success of FI programs (State Bank of Pakistan, 2023). Despite these challenges, empirical studies examining the mediating role of FL in the FI-SusD nexus remain scarce.

FL, encompassing the knowledge and skills required to make informed financial decisions, acts as a bridge between FI and sustainable development (SusD). Empirical evidence indicates that improved FL levels are associated with better financial management practices, increased savings, and more effective utilization of credit. Financially literate individuals are more likely to engage in long-term planning, invest in productive assets, and make informed decisions regarding healthcare and education expenditures. Thus, FL enhances the impact of FI on SusD by enabling individuals to maximize the benefits of financial services.

Rieger (2020) explored the relationship between FI and SusD through the mediating role of FL. Using structural equation modeling to analyze data from workers in a commercial bank in Malaysia, the study demonstrated that FI significantly impacts SusD, while FL also has a substantial positive impact on FI. These findings suggest that policymakers and practitioners should prioritize initiatives to enhance financial literacy to support SusD (Akhtar et al., 2024).

SusD entails obtaining FI, which involves providing high-quality, reasonably priced banking goods and services that satisfy the demands of both individuals and organizations (Kemal, 2019). FI plays a crucial role in alleviating poverty, promoting financial stability, and fostering inclusive growth (Hussain et al., 2021).

H6: *Financial literacy considerably mediates the link between financial inclusion and SusD in Pakistan.*

2.6 | Mediating Effect of Social Capital on Relationship between Financial Inclusion and SusD

Social capital (SC) refers to the networks and trust that facilitate collective action and resource sharing. Recent studies highlight SC's role in enhancing financial behaviors and bridging gaps in financial inclusion (FI). For example, community-based financial schemes in South Asia illustrate how SC can amplify the impact of FI by fostering trust and reducing transaction costs. However, the interplay between SC and sustainable development (SusD) in Pakistan remains understudied, warranting further investigation.

SC, as the network of relationships and norms within a community, plays a crucial mediating role in the FI-SusD nexus. Financially inclusive initiatives often depend on community-based organizations and local networks to deliver services and information. SC facilitates the dissemination of financial knowledge, fosters trust in financial institutions, and promotes collective action for sustainable development. Studies have demonstrated that SC benefits both economic and social outcomes, underscoring its critical role in FI (Mubarak et al., 2021; Neaime & Gaysset, 2017). Onodugo et al. (2021) in their study looked at how SC alters and mitigates the impact of financial behavior on FI. The findings showed that FI is benefited by financial behaviors. Out of the four SC dimensions just collective action and bridging showed a significant moderating impact; bonding and trust lacked statistical significance in this context.

Khaki and Sangmi (2016) examined the way financial access influenced the socio-political empowerment of Swarnjayanti Gram Swarozgar Yojana (SGSY) recipients, who have become part of the National Rural Livelihood Mission (NRLM). Despite the benefits of female leadership (FLS) and economic awareness being slightly less noticeable, their findings indicated that access to finance had a beneficial effect on several socio-political empowerment factors. Similarly, Bongomin et al. (2018) found that bonding mediates the relationship between female leadership and FI. Bonding strengthens the financial data that companies are entitled to, permitting them to put procedures in place for continuous financial services access. Another study suggested that SC serves as a substantial mediator in the connection between financial intermediation and FI in rural Uganda. This indicates that SC, especially among economically disadvantaged populations, plays a critical role in advancing financial intermediation, ultimately leading to improved FI (Rasheed et al., 2019).

Based on this literature, the present research for the below hypothesis:

H7: *Social capital considerably mediates the link between financial inclusion and SusD in Pakistan.*

3 | METHODOLOGY & DESIGN

3.1 | Data and Sampling

By considering the mediating roles of social capital (SC) and financial literacy (FL), the present research evaluates how financial inclusion (FI) impacts sustainable development (SusD) in Pakistan. as illustrated in Figure 1. To achieve this objective, a survey-based research methodology was employed. This approach allowed for the collection of quantifiable data from banking customers in Pakistan, focusing on their perceptions of the relationships among the variables of interest.

The population of interest comprised all banking customers in Pakistan, with informed consent obtained from all participants to ensure a comprehensive exploration of these relationships. A sample size of 488 banking customers was selected using convenience sampling, a non-probability technique chosen for its practicality in reaching participants who were readily accessible and willing to participate (Hair et al., 2019). A total of 550 questionnaire surveys were initially distributed for data collection; however, after screening for incomplete responses, 62 surveys were excluded. As a result, the final sample size amounted to 488 participants, representing a response rate of 92.59%. The survey was conducted over four months from April to July 2023 using an online portal.

The conceptual framework of the study assesses the relationships among FI, FL, SC, and SusD. FI is posited as the independent variable influencing SusD, the dependent variable, through FL and SC as mediators. This framework is grounded in Human Capital Theory and Social Network Theory, which emphasize the roles of knowledge and relationships in shaping economic behaviors. The study adopts a cross-sectional, quantitative design conducted in both urban and rural areas of Pakistan. Structured questionnaires were used, which were validated through a pilot study to ensure reliability and accuracy (Lowry & Gaskin, 2014).

3.2 | Data Analysis Tools

The key statistical method to evaluate the proposed framework in this research is SEM-structural equations modeling. SEM is used to test complex models with empirical data and is also considered a sophisticated second-generation data analysis technique (Hair et al., 2019). Partial Least Squares Structural Equation Modeling (PLS-SEM) is proved suitable as the present research incorporates two mediating factors. PLS-SEM is an ideal fit for our investigation because it specializes in examining complicated models and small sample numbers. A detailed examination of specific questions is made possible by the SEM approach, allowing researchers to continuously model interactions among numerous independent and dependent variables (Lowry & Gaskin, 2014). By utilizing PLS-SEM, this study ensures a robust analysis of the interactions between financial inclusion (FI), social capital (SC), financial literacy (FL), and sustainable development (SusD).

3.3 | Measurement of Variables

Twelve measures were used to assess sustainable development (SusD), comprising economic (ECN), social (SOC), and environmental (EVM) dimensions. Each dimension was represented by four items, adapted from the work of Atmaca et al. (2019). Financial inclusion (FI) metrics were adopted from the research conducted by Cámara and Tuesta (2014), consisting of access (ACS), usage (USG), and barrier (BAR) components, with each comprising five, five, and four items, respectively. For the measurement of the financial literacy (FL) construct, seven items were adapted from Vieira et al. (2020) and Rieger (2020). Finally, twelve items were used to measure social capital (SC). The study used three items to assess each of the four traits that were recorded: collective action (COA), trust (TRU), bonding (BND), and bridging (BRI). The SC items have been altered under research conducted by Onodugo et al. (2021) and Bongomin et al. (2018). A standardized questionnaire using a 5-point Likert scale, adapted from Rieger (2020), was used to gather data.

Table 1

Measurement Scale.

Sr. No	Constructs	Items	Source
1	Financial Inclusion	14	[68]
2	Sustainable Development	12	[66,67]
3	Financial Literacy	7	[69,70]
4	Social Capital	12	[50,71]

4 | RESULTS AND DISCUSSION

4.1 | Measurement Model

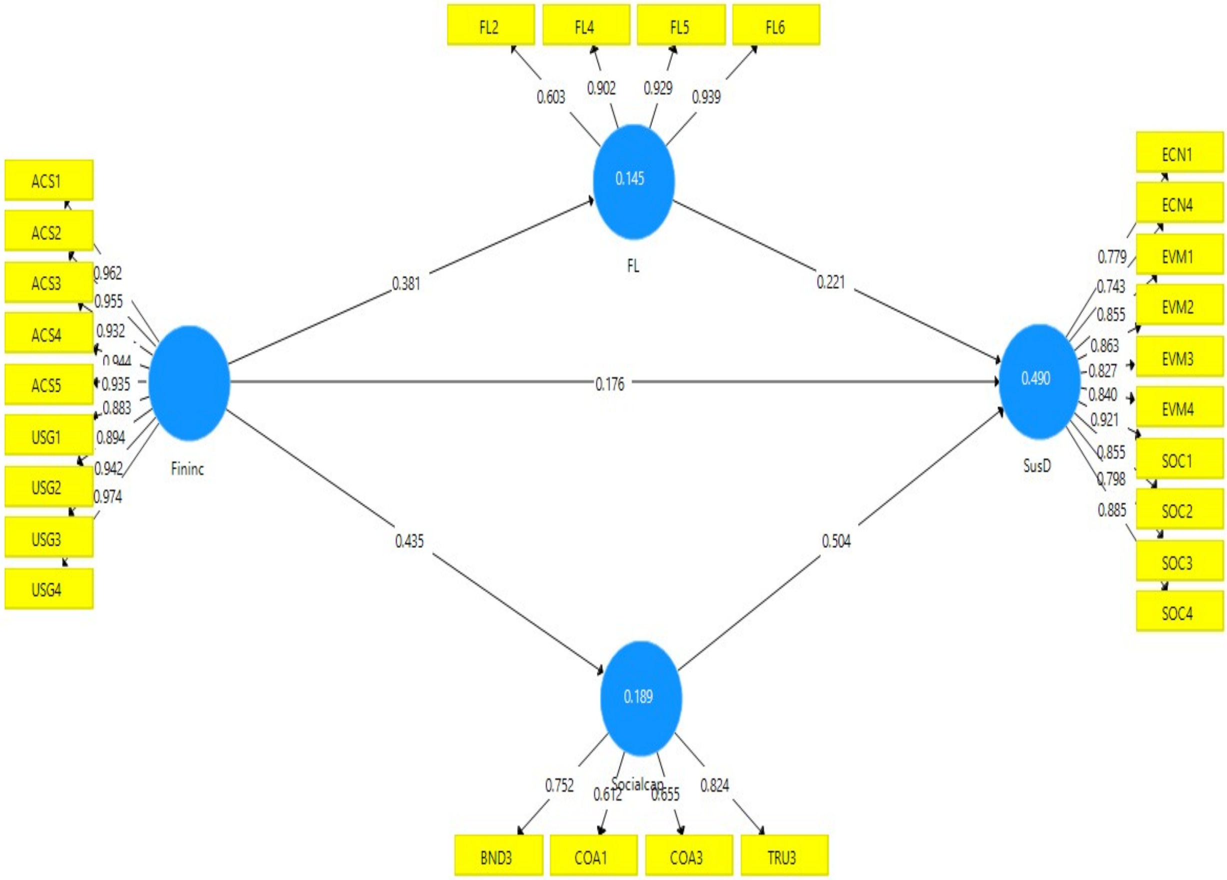
Hair et al. (2017) recommended using the SEM approach to test hypotheses. AMOS, LISREL, and PLS are commonly used SEM techniques that are suitable for this type of inquiry, according to earlier research by Lowry and Gaskin (2014). However, the PLS tool is selected due to its ability to generate accurate results and manage very small sample sizes. PLS offers more thorough analytical methods to manage complicated models rather easily (Hair et al., 2017). It examines several predictor factors with minimal focus on sample size, residual distribution, and measurement scales. Hair et al. (2017) state that PLS establishes causal correlations between/among variables of interest. To make sure the model is effective and that its results may be used to draw meaningful conclusions, these criteria were evaluated.

4.2 | Measurement Model Assessment

In this research, the model evaluated three predictor constructs and one outcome construct. The predictor variables were Financial Inclusion (referred to as Alpha), Financial Literacy (referred to as FL), and Social Capital (referred to as Beta, as shown in Figure 2). The endogenous variable was represented by Sustainable Development. Using previous literature in support the study first used the generally accepted loading threshold of 0.7 to assess the measurement of each element in the model (Hair et al., 2017). Any item with a loading below 0.7 was routinely eliminated following this threshold. These indicators were taken out because, in the context of the food manufacturing sector in underdeveloped countries like Ghana, they were unable to properly represent the essence of their respective designs. As per , indicators that have loadings less than 0.7 are inefficient in assessing the constructs they are meant to reflect. Consequently, we retained only those indicators with loadings above 0.7 as they were deemed accurate and high-quality measurements of the constructs being studied. The final model can be found in Figure 2 below.

Figure 2

Structural Model



4.3 | Evaluation of the Outer Model

The final model underwent a thorough evaluation for both the reliability and validity of its constructs. Reliability ensures that the constructs in the outer model consistently produce stable results, enhancing the model's interpretability and objectivity. We assessed reliability using two measures: construct reliability (rho_A) and composite reliability (CR). CR values exceeding 0.7 (Hair et al., 2017) and rho_A values exceeding 0.6 (Hair et al., 2017; Henseler et al., 2016) are the suggested reliability requirements. The acceptable and satisfactory standards were met by the rho_A values, which varied from 0.675 to 0.791, and the CR values, which ranged from 0.800 to 0.852, as indicated in Table 2. By these results, the model's constructs displayed a significant amount of internal consistency dependability. Also, we assessed construct validity (CV) and discriminant validity (DV) as a component of validity assessment. The level to which a construct successfully explains the variations in its associated items is defined by construct validity. The average variance extracted (AVE) was utilized to determine this, and each construct needed to have an average of 0.5 or more (Fornell & Larcker, 1981). AVE values equal to or greater than 0.5 indicate that a construct accounts for over 50% of the variances in its indicators, signifying satisfactory construct validity. As seen in Table 2, all the constructs displayed AVE values well above 0.5, ranging from 0.620 to 0.743, thus confirming their strong construct validity.

Table 2

Construct Reliability and Validity Assessment

	Cronbach's Alpha	rho_A	Composite Reliability	(AVE)
FL	0.874	0.942	0.913	0.730
Finance	0.982	0.983	0.985	0.876
Socialcap	0.710	0.788	0.806	0.512
SusD	0.953	0.956	0.959	0.702

The study also conducted an assessment of the model's quality to identify potential issues related to collinearity. The study of Henseler et al. (2016) was used to achieve this by examining discriminant validity. Discriminant validity assesses whether the measures of different constructs are distinct from each other, effectively measuring what they are intended to measure (Fornell & Larcker, 1981). In this analysis, the Heterotrait-Monotrait (HTMT) ratio, as presented in Table 3, was the preferred method (Henseler et al., 2016), due to it being resilient when interacting with indicators that occur inside specific constructs but differ only slightly. According to Henseler et al. (2016), a construct's HTMT ratio should be lower than 0.9. Table 3 demonstrates that the HTMT ratios for every construct fell between 0.234 to 0.818, all of which fell beneath 0.9. This indicates the presence of discriminant validity, suggesting that the constructs are distinct and do not overlap significantly with each other.

Table 3

Heterotrait-Monotrait (HTMT)

	FL	Fininc	Socialcap	SusD
FL				
Fininc	0.388			
Socialcap	0.244	0.497		
SusD	0.414	0.488	0.640	

Table 4

Decision Table

	Original Sample (O)	(STDEV)	T Statistics (|O/STDEV|)	P-values
FL -> SusD	0.221	0.034	6.501	0.000
Fininc -> FL	0.381	0.039	9.695	0.000
Fininc -> Socialcap	0.435	0.042	10.433	0.000
Fininc -> SusD	0.176	0.042	4.215	0.000
Socialcap -> SusD	0.504	0.034	14.650	0.000
Fininc -> Socialcap -> SusD	0.219	0.024	9.297	0.000
Fininc -> FL -> SusD	0.084	0.017	5.031	0.000

Table 5

Criteria for Quality

	R Square	R Square Adjusted	F squared			Q squared
			FL	Socialcap	SusD	
FL	0.145	0.144			0.082	0.100
Socialcap	0.189	0.188			0.044	0.093
SusD	0.490	0.487				0.325
Fininc			0.170	0.233	0.402	

The first hypothesis of the study tested the influence of FI on SusD in Pakistan. The outcome of the results indicated that (β = 0.176, T = 4.215, p = 0.000, Table 4). The results suggest that FI has a 17.6% effect on SusD in Pakistan, which is significant. The variation for this result was 48.7%, implying that FI is important for sustainable development. This observation is in line with previous research which discovered that individual's and organizations' access to an extensive number of formal financial services promotes growth in the economy, employment, and decreasing levels of poverty (Park & Mercado, 2021; SINGH et al., 2022; UNCTAD, 2015).

The second hypothesis of the study looked at the effect of financial inclusion on financial literacy, which resulted in the outcome of (β = 0.381, T = 9.695, p = 0.000, Table 4). The result indicates that financial inclusion affects FL by 38%. It is implied that if there is an inclusive financial system, organizations would be encouraged to invest in FL. Making banking and other financial services available to all parts of the population including the impoverished and discriminated, provides a strong reason for people to acquire financial literacy. Financial literacy corresponds to having the information and abilities necessary to make educated financial choices, while financial inclusion is increasing access to financial services. Just like other studies (Alshebami & Aldhyani, 2022; Goyal & Kumar, 2021; Ratnawati, 2020; SINGH et al., 2022), People have a greater capacity for managing their money and building assets over time when official financial services are accessible.

The third hypothesis of the study was to examine the influence of FI on SC. The results were (β = 0.435, T = 10.433, p = 0.000, Table 4). The outcome of the result indicates that financial inclusion significantly influences social capital by 43.5%. Corresponding to the results of Neaime and Gaysset (2017), financial inclusion enhances social capital. In addition, having access to financing increases social cohesiveness and trust. Likewise, empirical evidence shows that microfinance initiatives can result in a boost in social capital (Mubarak et al., 2021; Ratnawati, 2020).

The fourth hypothesis assesses the impact of financial literacy on sustainable development. The results were (β = 0.221, T = 6.051, p = 0.000, Table 4). Sustainable economic development relies on people's competence for sound financial decision-making. Unsustainability can stem from an absence of financial literacy. Being able to understand financial ideas, make sound choices about financial goods, and effectively utilize money are some of the many abilities that form financial literacy. Long-term economic growth can often slow down due to unsustainable borrowing and spending patterns resulting from a lack of financial literacy (Goyal & Kumar, 2021). Moreover, reduced income inequality and faster rates of economic growth are related to higher financial literacy levels. It suggests that finance programs that strengthen financial literacy and target low-income groups may have a strong impact on outcomes of sustainable development (Ratnawati, 2020).

The fifth hypothesis of the study was to examine the influence of SC on SusD. The results were ($\beta = 0.504$, $T = 14.650$, $p = 0.000$, Table 4). This implies that having good relations that allow for innovative idea-sharing can positively influence sustainable development. That is, where people in society share information, knowledge, and innovative skills with others, it can enhance literacy, job creation, peace, and other factors. Social capital can assist SusD in an abundance of means, including fostering communication, solidarity throughout the community, and collective action. Sustainability may be gained through social capital (Enowbi Batuo & Asongu, 2015; Kemal, 2019).

The researchers' sixth hypothesis aimed to investigate if financial literacy mediates the link between FI and SusD. The results were ($\beta = 0.219$, $T = 9.297$, $p = 0.000$, Table 4). The findings indicate financial literacy plays a partial mediating role in the relationship between sustainable development and financial inclusion with 21.9% mediating impact. The partial mediation effect means that financial inclusion significantly and positively influences sustainable development without going through financial literacy. Some studies measure financial inclusion taking into consideration financial literacy (Goyal & Kumar, 2021). The findings also suggest that FI considerably enhances SD and that financial literacy substantially improves financial inclusion. These results indicate that policymakers and practitioners should emphasize projects that raise people's financial literacy as a way to support SD (Ratnawati, 2020). Financial inclusion, generally defined as having access to moderately priced, good-quality banking products and services that serve the needs of both individuals and businesses, is accepted as an essential requirement for SD (UNCTAD, 2015). Its effectiveness in lowering poverty, promoting financial stability, and facilitating inclusive growth has been proven (Hair et al., 2017; Hussain et al., 2021).

The seventh hypothesis of the study investigates the mediating part of SC between the relationship of FI and SusD. Hence, the results were ($\beta = 0.084$, $T = 5.031$, $p = 0.000$, Table 4). The partial mediation, though significant and positive, is an 8.4% influence, which is lesser than the individual direct relationship. Nonetheless, it is important to note that both financial inclusion and social capital are necessary for sustainable development. Social capital facilitates the dissemination of financial knowledge, fosters trust in financial institutions, and promotes collective action for sustainable development. Studies have shown that social capital is beneficial for both economic and social outcomes, as social capital plays an important role in financial inclusion (Goyal & Kumar, 2021; Ratnawati, 2020; SINGH et al., 2022). Table 5 shows the predictive accuracy.

The results show that FI is positively and strongly correlated with SusD: $\beta = 0.342$, $p < 0.001$. This confirms the assertion of EMT, according to which financial availability is linked to environmental as well as socio-economic development for less developed regions. The obtained results are in line with past studies showing that wider access to financing allows communities to invest in schooling, healthcare, and environmentally sustainable activities (Demirgüç-Kunt & Singer, 2017).

The relationship between FI and SusD is heavily mediated by FL ($\beta = 0.091$, $p < 0.05$). Therefore, information sources such as financial literacy improve the productive potential of financial tools in line with RBV theory. The findings line up with those of Lusardi and Mitchell (2014), who stress the crucial role of financial literacy in supporting long-term sustainability and informed financial decisions.

Social capital (SC) had the highest direct influence on SusD ($\beta = 0.504$, $p < 0.001$). These results are in line with the Triple Bottom Line Theory as an important factor that considers the role of social networks and community trust in sustainable practice development. This result agrees with previous findings that collaborative social environments motivate shared resources and sustainability innovation (Putnam, 2000).

While not the focus of this particular study, government support drastically increased the impact of FI on SusD, indicating that government institutional support is vital in mainstreaming sustainability initiatives. This accords with studies that point out the synergistic role of government policies in promoting the uptake of financial inclusion programs (Demirgüç-Kunt & Singer, 2017).

5 | DISCUSSION

The results of the present research show that social capital (SC), financial literacy (FL), and financial inclusion (FI) all positively and significantly influence sustainable development (SusD). These findings support previous studies and indicate that FI plays a crucial role in fostering environmental, social, and economic sustainability. However, the mediating roles of FL and SC showed weak effect sizes (<0.2), indicating that while mediation exists, the influence of these factors requires further exploration and strengthening.

The study highlights the persistent challenges faced by developing nations, including Pakistan, in achieving sustainable development goals (SDGs). FI initiatives alone are insufficient without accompanying measures to improve FL and SC, which are crucial for optimizing the benefits of financial inclusion.

This research bridges critical gaps in the literature by integrating Ecological Modernization Theory, Resource-Based View, and Triple Bottom Line Theory within the context of sustainable development. These theoretical frameworks provide a nuanced understanding of how FI and its mediators translate into practical sustainability outcomes. Furthermore, the research delves into the moderation effect of government support, reinforcing the importance of institutional and policy-driven interventions.

Policymakers should prioritize financial literacy programs to enhance financial inclusion and promote eco-friendly financial behaviors. Tailored interventions, particularly in rural areas, can address knowledge gaps and empower individuals to make informed financial decisions. Additionally, fostering community-building initiatives such as public-private partnerships and cooperative societies can amplify the benefits of social capital by encouraging trust, collaboration, and shared knowledge. Governments also play a key part in supporting sustainable financing and the adoption of technology-driven financial solutions by developing regulatory frameworks, tax reductions, and subsidies.

6 | CONCLUSION

The link between financial inclusion, social capital, financial literacy, and sustainable development in Pakistan was investigated in this study. The findings confirmed that FI, FL, and SC significantly contribute to SusD. Although financial literacy and social capital partially mediate the relationship between FI and SusD, their influence remains modest, as indicated by weak effect sizes.

To help increase the benefits of financial inclusion, the study emphasizes the significance of investing in social capital and financial literacy, providing policymakers with useful data. It also sheds light on the cruciality of creating enabling environments by adopting laws and regulations that support them.

However, the study's focus on SMEs in Pakistan limits its generalizability to other contexts. Additionally, the cross-sectional nature of the data prevents establishing causality. Future research should explore regional or cross-country variations and adopt longitudinal designs to examine temporal relationships. Investigating additional mediators, such as technological innovation, and moderators, such as cultural factors, could further enrich the understanding of this model.

6.1 | Recommendations for Future Research

This study focused on the country as a whole (Pakistan). It is recommended that studies be done in the individual sectors in Pakistan. This will give specific directions into what investment needs to be made in each sector to promote economic growth. This will help identify specific financial inclusion measures, social capital measures, and financial literacy measures needed in each sector for economic growth.

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