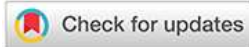


ASSESSING THE INFLUENCE OF FINANCIAL INCLUSION AND DIGITAL FINANCE ON SMES PERFORMANCE: THE MODERATING ROLE OF TECHNOLOGICAL ADAPTATION



¹Muhammad Zulqarnain, ²Muhammad Mustehsan, ³Usman Khan Balouch,
⁴Samavia Munir

^{1, 2, 3}Department of Economics and Business Administration, University of Education Lahore
– Pakistan

⁴Bahauddin Zakariya University Multan / University of Education Lahore - Pakistan

e-mail:

¹*abdzainabia@gmail.com (corresponding author)

²m.mustehsan450@gmail.com

³usmankhanbalouch10@gmail.com

⁴samavia.munir@ue.edu.pk

ABSTRACT

The study's overarching goal is to shed light on the connections between technical progress, the success of Pakistani SMEs, and broadening access to financial services. The survey was administered to 212 different SMEs through an online system. Experts in various fields will be selected at random. Statistical tools such as correlation tests, reliability analyses, regression analyses, and moderation analyses will be utilized to investigate the information gathered. Having many financial options available to them increases the likelihood of success for small and medium-sized businesses (also known as SMEs). The favorable correlation between digital finance and productivity, financial inclusion, and economic development was tempered by the degree to which small and medium-sized firms were receptive to embracing new technology. Financial inclusion and digital banking are more beneficial to technologically innovative SMEs than to less adaptable rivals. This is because SMEs are the most open to using cutting-edge tools. Based on our findings, we conclude that politicians and financial institutions need to advocate for increased financial inclusion and digital banking, while small and medium-sized businesses (SMEs) should emphasize technological adaptation.

Keywords: Financial Inclusion; Digital Finance; Technological adaptation; SMEs Performance

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INTRODUCTION

The term "financial inclusion" describes how simple it is for people and businesses to have access to various forms of financing, whereas the term "digital finance" describes the provision of such services using digital technology. Because of their frequent neglect, It would be hard to overstate the importance of small and medium-sized enterprises (SMEs) in promoting economic growth and development. Despite It has been the focus of prior research to examine how financial inclusion and digital finance affect the productivity of SMEs. For example, KPMG (2019) argues that SMEs may improve their financial management and performance by embracing digital finance to obtain access to financial services, which can save the business both time and money. In a similar vein, Aker and Mbiti's (2010) study found that SMEs benefited from improved financial management and lower transaction costs when adopting mobile banking. Multiple studies have shown that providing small and medium-sized businesses (SMEs) with easier access to financial services increases SME production. Demirguc-Kunt et al. (2018) found that small and medium-sized enterprises (SMEs) when given greater access to funding, generate more employment than large companies do. Despite widespread interest, surprisingly little is understood about the role that technological adaptation plays in the connections between SME performance, digital banking, and access to capital. Financial inclusion can boost SMEs' productivity and growth, according to research by Beck et al. (2014).

This trend is reflected in the recent uptick in studies examining how MSMEs fare after adopting cutting-edge technologies. The success of small and medium-sized businesses, online banking, and the spread of financial services are just a few of the many topics that have been the subject of research. How SMEs might use digital technology to increase their financial inclusion and performance is unexplored. According to the authors of one such study, "there is a need for more research on how SMEs can effectively adapt to digital technology and integrate it into their business operations to enhance their financial inclusion and improve their performance. Tetteh et al. (2021) find that knowing how technological adaptation impacts the connection between financial inclusion, digital finance, and SMEs' performance is crucial. However, the effect of technological adaptation as a moderator between financial inclusion, digital finance, and SMEs' performance has not been thoroughly investigated in this research. There is a need for more study into how small and medium-sized enterprises (SMEs) may leverage digital technologies to increase their financial inclusion and productivity.

Some of the issues that we intend to investigate in this research are as follows: 1) to what extent do changes in technology and changes in SMEs' access to capital affect the efficacy of these relationships? 2) Is there a correlation between the rise of thriving small and medium-sized enterprises and the advent of digital banking systems? 3) If yes, how does the adaptability of today's technologies limit this growth? 4) How can SMEs maximize the potential of digital tools to boost their access to capital and their productivity? In line with the conclusions of previous research on the topic, It is hoped that by answering these questions and achieving these objectives, the light would be shone on how SMEs may use digital technology to broaden their access to capital and boost their productivity.

This research aims to fill a knowledge gap by exploring how access to digital finance and greater financial inclusion may affect the growth of SMEs in Pakistan. The authors of the research have high hopes that their results would convince legislators, bankers, and company owners of SMEs to prioritize programs that will broaden the usage of digital financial products, and improve the availability of credit to small and medium-

sized enterprises and their capacity to adopt innovative technologies. This research was carried out to shape future laws and policies in Pakistan that would be beneficial to micro, small, and medium-sized companies (MSME).

LITERATURE REVIEW, RESEARCH FRAMEWORK, AND HYPOTHESES

Financial Inclusion

When we talk about "financial inclusion," we're referring to the universal availability of a wide variety of financial services, particularly for individuals with lower incomes or who are otherwise disenfranchised. To put it simply, this is the definition of "financial inclusion. When people from low-income backgrounds have easy access to banking services at little or no cost, we have achieved financial inclusion (Dev, 2006). "Financial inclusion" refers to the availability and use of conventional monetary means (Sahay et al., 2015). All of these reasons highlight the need to make sure all individuals can use these financial services.

The World Bank defines financial inclusion as the process of making financial services broadly accessible to guarantee that individuals from all walks of life have access to and responsibly utilize these services. The term "financial inclusion" was coined by the Center for Financial Inclusion (2018) to describe the practice of facilitating people's access to a variety of financial services that meet their specific requirements.

According to Sarma's (2008), multidimensional framework, financial inclusion can be evaluated in terms of the following three factors: (1) access to banking; (2) availability of banking services; and (3) consumption of high-quality banking services. Sarma first put out the idea in 2008. Due to the strong relationship between the availability of external money and productivity and growth, access to capital is especially crucial for small and medium-sized firms (SMEs) (Mbuva and Wachira, 2019; Myint, 2020). Recent economic research (Beck and Demirguc-Kunt, 2006) has looked at the potential role that funding may play in helping SMEs increase production. Financial inclusion, or the provision of access to financial services, is a key component of broad economic participation, which is in turn a key driver of development (Terzi, 2015). Investment from financial institutions (FIs) is essential for the development of small and medium-sized enterprises (SMEs) and the production of new jobs. Profits would increase now and in the future as a result. (Thathsarani et al., 2021).

Accessibility

According to the concept of accessibility, it is simple to open a bank account if the bank is affordable and situated close to other bank service points, such as branches and ATMs. A greater number of people are able to become financially included when banks offer lower fees, offer more convenient locations, and require less paperwork to create an account (Allen et al., 2012). More individuals having access to traditional banking and associated services is expected to increase financial inclusion. One of the three pillars of financial inclusion is access to FIs. Accessibility has also been employed in two studies to rate FI at both early and late phases of development (Chakravarty and Pal, 2013).

When talking about the supply side, it's important to keep in mind the connections made between proximity and price and how these affect accessibility. To be successful, businesses need simple access to financial services (Konte and Tetteh, 2022). To be sure, earlier efforts have mostly concentrated on FI as the sole international answer for the expansion and development of SMEs (Thathsarani and Jianguo, 2022). Anastasia and coworkers' study, set for publication in 2020, suggests that features unique to financial institutions (FIs) such as mobile banking, banking services, and banking penetration

might be advantageous to small and medium-sized businesses (SMEs). Small company owners and real estate investors may benefit greatly from a wide range of financial services, which will allow them to expand their enterprises, better manage their financial and non-financial operations, take on less risk, and better weather economic downturns.

Availability

When it comes to technology selection, entering new markets, and gaining access to other valuable resources, a company's success heavily depends on the availability component of the FI idea. Companies in low-income nations, in particular, have a hard time succeeding without easy access to financing (Thathsarani and Jianguo, 2022). Having access to a variety of financial services has been linked to higher levels of output and efficiency, and revenue growth for firms (Harrison et al., 2015). Ibor et al. (2017) found that growing access to banking financial services was a key factor in the prosperity of SMEs. Evidence suggests that when service suppliers and consumers are geographically separated, SMEs experience a decline in performance and growth. According to their results, Simiyu and Oloko (2015) conclude that SMEs benefited from the wider availability of banking services such as ATMs, CDMs, and the actual, brick-and-mortar places where branches are housed. Beneficiary selection issues in the financial inclusion sector have been identified in a range of countries, and a lack of credit history, a large number of players, and disagreements in viewpoint are all factors. (Chao et al., 2021). Customers should be able to quickly and easily use financial services (Sarma, 2008) in an accessible financial system. According to Sharma (2016), one may characterize the accessibility of banking services by measuring their geographical and demographic spread. Nonetheless, most studies of FI in India indicated that expanding access to regional banks, ATMs, and affordable loans were important policy priorities (Chakravarty and Pal, 2013). It is vital to analyze availability issues by first understanding the breadth of financial services offered to the general population.

Usage

The term "use" is applied to a customer's involvement with a financial service or product, both in terms of its intensity and its longevity. The frequency, duration, and regularity of use are also specified (Alliance for Financial Inclusion, 2010). Socioeconomic factors such as per capita GDP, human capital, the strength of the legal system, and cultural norms that promote frequent use of financial services are all important in explaining why certain people are more likely to utilize them than others (Camara & Tuesta, 2014). How convenient it is for customers to use banking services is affected by factors including population density and the availability of branch and ATM networks (Beck et al., 2007). To truly be included in the financial system, one must do more than just open a bank account (Sarma, 2008).

Small Medium Enterprises

Aga, Francis, and Rodriguez-Meza (2015), define SMEs that are critical to expansion, the creation of new jobs, and progress. Because they create employment and boost local incomes, SMEs are crucial to national progress (Kamunge, Njeru, & Tirimba, 2014). According to Turyakira and Mbidde (2015), Small and medium-sized businesses' (SMEs') competitiveness is hampered due to a lack of funding and studies on the relevance of SMEs' networking obligations. Small and medium-sized businesses are included here. Cooperation among SMEs boosts their competitiveness by allowing them to share expenses for things like consulting, R&D, production, export, financing, and

employee education and development (Rahman, 2015). Breda and Fahy's (2011) study showed that human capital networks boosted international performance, knowledge sharing, and resource sharing. We were unable to identify any root reasons, much to our dismay. Threats to small and medium-sized enterprises (SMEs) in Uganda and throughout Sub-Saharan Africa range from the potentially annoying to the potentially disastrous. It's incredibly disheartening that so many startups don't make it through their first year. Reducing regulatory burdens and increasing financial incentives are two ways governments may support the growth of small and medium-sized enterprises. The inhabitants of these nations will be better off financially as a consequence of the sustained expansion of their economy. There is a broad range of opinions on the significance of small and medium-sized firms (SMEs) to economic growth and development, although SMEs share common traits, behaviors, and fundamental challenges. The term "small and medium-sized enterprises" (or "SMEs") is used to describe these kinds of businesses. Hatch and Cunliffe (2012) found that compared to their counterparts in economically developed nations, African SMEs suffer much greater levels of competitiveness and regulatory burden. Ocioo, Akaba, and Worwal-Brown (2014) claim that small and medium-sized enterprises (SMEs) face significant challenges due to market rivalry. Small and medium-sized businesses (SMEs) from all over the globe are battling fiercely for market share as a result of globalization. By putting off adopting cutting-edge technology, Ugandan companies are taking unwarranted risks. It is not surprising that SMEs in Africa may struggle due to a lack of operational capabilities and a paucity of resources, given the continent's abysmal condition of technology, innovation, and human capital (Eton et al., 2021).

Financial Inclusion on SME Performance

A financial service's worth may be measured in a variety of ways, some of which include the annual savings rate, the number of account transactions, and the total amount of electronic payments. Based on the number of banks and ATMs per 100,000 people, Sarma (2008) calculated an accessibility index. Client satisfaction is significantly affected by the ease with which one may have access to financial services. Existing research focuses mostly on the different varieties of SME checking and savings accounts. Ombi et al. (2018) found that when SMEs had fewer barriers to accessing financial services, productivity increased. Therefore, financial inclusion requires both extensive access to banking services and minimal transaction costs. Given the significance of facilitating more entry, availability, and use of financial resources by SMEs, it is not surprising that there is an established correlation between financial inclusion and the success of SMEs. Taking these relationships into account, we may make the following assumptions:

Hypothesis 1 (H1): Financial inclusion improves SME performance significantly.

Digital Finance and Performance of SMEs

Kulathunga et al. (2020) state that people with a firm grasp of digital technologies are in the best position to assist SMEs in capitalizing on the economic development opportunities presented by the proliferation of digital financial services. The results of this research provide management with a body of knowledge consisting of digital financial data that can be used to boost the company's performance. Inconveniently, research has shown either a lack of data or anecdotal evidence on the digital routes customers utilize to obtain digital money. Agyapong (2021) found that mobile money is increasingly being used by customers to make purchases online. It was discovered that businesses are improving their service delivery by adopting digitalization. The

exploratory nature of the research hindered an examination of how a company's use of digital platforms may influence the company's performance.

Research referenced by Hernando & Nieto (2007) suggests that it may take more than two years to see a return on investment for technology projects. Is there a sweet spot for digitization, and how much of it is desirable in terms of return on investment? There hasn't been enough discussion in the literature to provide satisfactory answers to these vital topics. If there are any additional elements at play, how do they affect the quality of digitalization? It would be intriguing to see the pace of growth in both technology innovation and customer awareness. Few have attempted to debunk the widespread idea that using digital financial services would increase a company's efficiency and bottom line, despite multiple research showing the opposite to be true (Abbasi & Weigand, 2017; Ozili, 2018). The following speculation developed throughout the discussions:

Hypothesis 2 (H2): The growth of digital finance makes it easier for SMEs to get the financing they need.

Moderating role of Technological adaptation

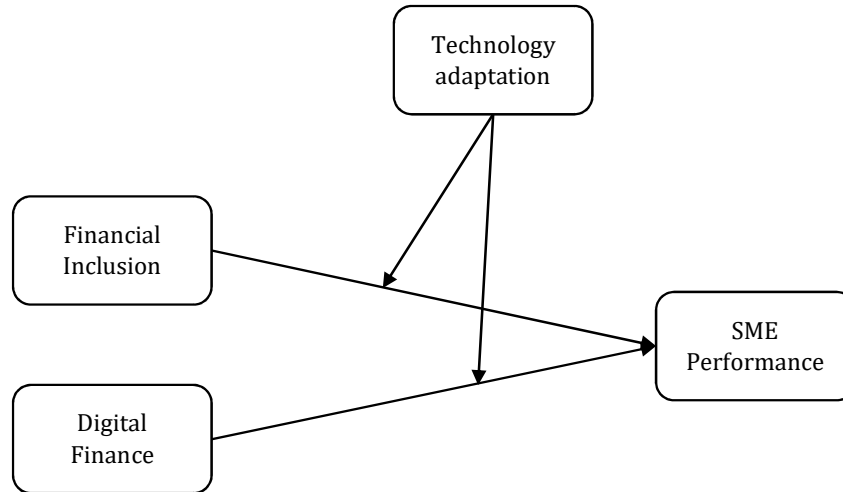
Small and medium-sized businesses (SMEs) can reap many rewards from adopting cutting-edge technologies, such as better communication with suppliers and customers, opportunities to collaborate, solve issues rapidly, and accomplish more with less work (Ensari and Karabay, 2014). A rise in digital FI may be beneficial to small and microbusinesses, say Yang and Zhang (2020), businesses, especially those in the private high-tech industry or other highly competitive sectors. Agyekum et al. (2021) found that when SMEs employed ICT-based services, they were more likely to be financially invested. As new technologies emerge, old business models must adapt, and financing is essential for every new venture to get off the ground. In addition to its many other advantages, digital finance facilitates greater use of digital technologies and financial services by businesses. Credit risk analysis and management require a reduction in the amount of unsystematic risk between service providers and commercial organizations. However, how people think digital marketing works and how easy it is to use will affect how they act and what they do (Nistor, 2019). The following conjecture is advanced based on these discussions.

Hypothesis 3 (H3): The correlation between SME financial inclusion and economic success is rather resistant to technological change.

Hypothesis 4 (H4): The pace at which SMEs adopt new technologies mitigates the potential advantages of digital financing for SMEs.

Research Framework

The research framework in Figure 1 presents the interaction between four key variables: financial inclusion, digital finance, SME performance, and technological adaptation.



Source: constructed for this research, 2023

Figure 1
Research Framework

METHOD

In this analysis, we examine the predicament of Pakistan's SME sector. To identify legally registered SMEs in Pakistan, we will confer with relevant government agencies. The population size will be calculated using the formula proposed by Cochran (1977) for populations of 471 or more. Taking the desired degree of confidence, the expected percentage of SMEs in Pakistan, and the desired level of precision, we can determine the sample size, n , using the formula $n = z^2 \times p \times (1-p) / e^2$. If we assume a 95% confidence interval, a 5% margin of error, and a sample proportion of 50% for SMEs in Pakistan, then our sample size is 212 businesses. The data-gathering procedure will consist of two parts: First, we'll run a pilot study to test out the survey and make sure it works as intended. Ten small and medium-sized businesses (SMEs) will be selected at random from the pool of applicants to take part in the pilot program. The pilot study's findings will be utilized to fine-tune the survey and make sure it works for the intended respondents. In the second round, we will use an internet platform to send the questionnaire to the chosen SMEs. The subject matter experts (SMEs) will be chosen at random. Small and medium-sized enterprise (SME) demographic data, SME financial inclusion variables, SME digital finance variables, SME technological adaptation variables, and SME performance variables will make up the questionnaire's four components. Correlation analysis, reliability testing, regression analysis, and moderation analysis will be used to make sense of the data we acquire. The research instruments will be developed to ensure that they reliably and validly collect data on the research variables of interest. We will pilot-test the survey to find any kinks in the data collection process before it begins. Both descriptive and inferential statistical methods will be applied to the data set. The mean, standard deviation, and frequency distribution are only some of the descriptive statistics that will be utilized to characterize the demographic makeup of Pakistan's SMEs. We will utilize inferential statistics, including correlation, regression, and moderation analyses, to examine the hypotheses.

The following procedures will be followed during the data collection process:

1. A list of registered SMEs in Pakistan will be obtained from the relevant government agencies.
2. The sample size will be determined using the sample size formula for a population of 471 or more.
3. The questionnaire's validity and reliability will be examined via a pilot study.
4. Selected SMEs will be interviewed either via an online platform or in-person to collect their responses to the questionnaire.
5. Both descriptive and inferential statistical methods will be applied to the data set.
6. The findings of the research will be presented in a report that will include a summary of the research questions, methodology, results, and conclusions.

Survey Questionnaire

To get information from SMEs in Pakistan, we'll make a survey and send it to them. The survey will be created in Word, and responses will be collected in a Google Form. Program for the Social Sciences in Statistics (SPSS): We are utilizing SPSS V20 to analyze the data. SPSS will be used to generate descriptive statistics as well as correlation, regression, and moderation analyses. Google Sheets: The information will be prepared in Excel for input into SPSS by removing duplicates and duplicating rows. To further illustrate the results of the investigation, Excel will be utilized to create charts and tables. Process Macro Analysis of Moderators (PROCESS): Hayes's (2013) Moderator Analysis Macro (PROCESS) will be used for the moderation analysis. If you're using SPSS and want to estimate and analyze moderation effects, you can do it with the help of the PROCESS macro. Tools for Data Visualization: We'll utilize data visualization tools like Tableau and Excel charts to convey our findings visually. To better understand the study's conclusions, we will utilize visual aids like graphs, charts, and tables to present the data.

RESULT AND DISCUSSIONS

Demographic Analysis

In Table 1 presents a detailed summary of the demographic study of a certain category, which looks to be Small and Medium-sized Enterprises (SMEs). It gives several characteristics and their corresponding percentages within this category, providing insights into the composition of the SME sector.

Based on the 212 SME responses we received, we found that 66.5% of Pakistani SMEs are owned by men, 22.2% are owned by women, and 11.3% are owned by a mix of men and women. Approximately one-third of Pakistan's SMEs are in the manufacturing sector, while almost as many (34.9%) are in the service sector, nearly as many (15.1%) are in the construction industry, and nearly as many (17.9%) are in the agricultural sector. In Pakistan, micro-, small-, and medium-sized businesses each account for 32.1% of the SME sector, while the remaining 35.8% are SME-sized or less. Twenty-five percent of Pakistan's SMEs are young ventures; 41 percent are developing into full-fledged businesses; and 34 percent are well-established in the market. 32.1 percent of SMEs in Pakistan are run by single people, 60.4 percent by partnerships, and 7.5 percent by corporations. In Pakistan, 16.7% of SMEs have an annual revenue of between \$100,000 and \$500,000; 10.5% of SMEs have an annual revenue of \$500,000 to \$1,000,000; 20.1% of SMEs have an annual revenue of \$1,000,000 to \$5,000,000; 33.0% of SMEs have an

annual revenue of \$5,000,000.01 and \$10,000,000.01; and 19.6% of SMEs have an annual revenue of \$10,000,000 or more.

Table 1
Demographic Analysis

Demographics	Characteristics	%	Percentage
Gender	1. Male-owned		66.5
	2. Female-owned		22.2
	3. Owned by both genders		11.3
Nature of business	1. Manufacturing,		32.1
	2. Service,		34.9
	3. Construction,		15.1
	4. Agriculture		17.9
Size of the SME	1. Microenterprise		32.1
	2. Small enterprise		35.8
	3. Medium enterprise		32.1
Age of the SME	1. Start-up		25.9
	2. Early stage		40.1
	3. Established		34.0
Legal status of the SME	1. Sole proprietorship		32.1
	2. Partnership		60.4
	3. Corporation		7.5
Annual revenue	1. 100,000-500,000		16.7
	2. 500,000-1 million		10.5
	3. 1 million-5 million		20.1
	4. 5 million-10 million		33.0
	5. Over 10 million		19.6

Source: SMEs of Pakistan, 2023

Descriptive Analysis

In Table 2 summarizes descriptive statistics for several factors associated with a dataset of 212 entities, most of which are probably Small and Medium-sized Enterprises (SMEs). This table provides crucial insights into the primary patterns and variability within these variables, assisting in their comprehension.

The table provides quick access to the mean, standard deviation, and range for each variable. You may get insight into the structure and variability of your data in this way. N is the total number of data points available for analysis. Annual_revenue is the sole scenario variable with less than 212 observations. It is the distance between the minimum and maximum values of a variable. For example, Gender may be either male or female; its range of 2 indicates that. The mean is the most common metric used to describe the midpoint of a set of data. For example, the mean for "Gender" is 1.4481, suggesting that it is measured on a scale in which "1" corresponds to "male" and "2" corresponds to "female." The deviation statistic is used to evaluate how far each data point is from the average. More dispersion in the data points corresponds to a larger standard deviation. Example: "Nature_of_business" has a standard deviation of 1.07636. The variance, calculated by squaring the standard deviation, is another way to examine

the data's dispersion. A wider value dispersion is represented by a larger variation. This may be seen in the fact that "Legal_status_of_the_SME" has a variance of 0.338.

Table 2
Descriptive Statistics

	N	Range	Mean	Std. Deviation	Variance
Gender	212	2.00	1.4481	.68990	.476
Nature_of_business	212	3.00	2.1887	1.07636	1.159
Size_of_the_SME	212	2.00	2.0000	.80284	.645
Age_of_the_SME	212	2.00	2.0802	.77164	.595
Legal_status_of_the_SME	212	2.00	1.7547	.58108	.338
Annual_revenue	209	4.00	3.2823	1.34869	1.819
Financial_Inc	212	4.00	3.7396	.77211	.596
Digital_Fin	212	4.00	3.7538	.85827	.737
SMEs_Perf	212	4.00	3.7764	.91580	.839
Technology_Adap	212	4.00	3.8149	.80472	.648
Valid N (listwise)	209				

Source: SMEs of Pakistan, 2023

Correlation Analysis

In Table 3 shows a correlation analysis for a dataset on Small and Medium-sized Enterprises (SMEs) in Pakistan in 2023. The table investigates the connections between four main variables: financial inclusion (Financial_Inc), digital finance (Digital_Fin), SMEs performance (SMEs_Perf), and technology adaptation (Technology_Adap).

Table 3
Correlations Analysis

		Financial_Inc	Digital_Fin	SMEs_Perf	Technology_Adap
Financial_Inc	Pearson Correlation	1	.774**	.764**	.714**
	Sig. (2-tailed)		.000	.000	.000
	N	212	212	212	212
Digital_Fin	Pearson Correlation	.774**	1	.720**	.723**
	Sig. (2-tailed)	.000		.000	.000
	N	212	212	212	212
SMEs_Perf	Pearson Correlation	.764**	.720**	1	.729**
	Sig. (2-tailed)	.000	.000		.000
	N	212	212	212	212
Technology_Adap	Pearson Correlation	.714**	.723**	.729**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	212	212	212	212

Source: SMEs of Pakistan, 2023

It is the Pearson correlation coefficient's job to determine how strongly two variables are related to one another along a straight line. If the value is 0, there is no

association; if it is -1, there is a perfect inverse correlation; and if it is 1, there is a perfect positive correlation.

As measured by Pearson's correlation coefficient ($r = .774$), There are several ways in which digital finance and financial inclusion are linked. Digital currency's long-term sustainability is bolstered by the growing number of individuals throughout the globe who lack access to traditional financial systems. Similarly, the rate of digital financing is positively correlated with the percentage of financial inclusion, suggesting that both factors lead to enhanced performance among SMEs.

We found a positive connection (r) between technological adaptability and almost every other variable of interest. These findings suggest that technical flexibility improves in line with the development of economically diverse societies, the spread of digital banking, and the progress of micro-, small-, and medium-sized enterprises.

There is more going on than just random chance in the interaction of the variables since all of the correlations are significant at the 01 level. The data shows that SMEs with easier access to capital and digital finance have higher growth rates and are more likely to embrace new technologies.

Reliability tests

In Table 4 displays the findings of a reliability study performed on numerous constructs or scales inside a dataset of Small and Medium-sized Enterprises (SMEs) in Pakistan. The table focuses on the internal consistency reliability of these constructs, as measured by Cronbach's alpha.

Table 4
Reliability Analysis

Constructs	No. of Items	Alpha (α)
FI	10	0.869
DF	5	0.828
SP	5	0.878
TA	8	0.871

Source: SMEs of Pakistan, 2023

Internal consistency reliability, as measured by the alpha coefficient, indicates how well the items on a scale or construct are connected with one another. In general, an alpha coefficient of 0.7 or higher is considered adequate, and an alpha coefficient of 0.8 or higher is considered excellent. Cronbach's alpha was used to determine how consistently different groups of people reported the tested construct. The results showed that both the 10-item Financial Inclusion scale ($=.869$) and the 5-item Digital Finance scale ($=.828$) were reliable. Both the SME Performance scale (with five items) and the Technological adaptation scale (with eight items) were determined to be reliable ($=.878$) and ($=.871$). The table provides a concise summary of the reliability findings.

Regression Analysis

In Table 5, 6, and 7 indicate the findings of a regression and moderation study undertaken in the context of Small and Medium-sized Enterprises (SMEs) in Pakistan.

Table 5
Regression Analysis

Hypothesis	β	R ²	P	Results
FI-->SMEs	0.91	.58	.00	Accepted
DF-->SMEs	0.77	.52	.00	Accepted

Source: SMEs of Pakistan, 2023

The results of the regression study provide credence to both the Null Hypothesis (Null) and Alternative Hypothesis (Alternative). The beta value of 0.91, which corresponds to an R² of 0.58 and a p-value of 0.00, proves the importance of FI in helping SMEs grow. We find that DF has a strong relationship to SME performance, as measured by a beta value of 0.77, a p-value of 0.00, and an R² of 0.52. The findings show that small and medium-sized enterprises (SMEs) gain significantly from increased access to digital banking and financial inclusion. According to the moderated regression analysis, financial inclusion was positively related to technological adaptation (= 0.24, t = 2.32, p 0.05), In addition, the usage of electronic banking systems increased in tandem with the spread of new technologies. (= 0.18, t = 1.96, p 0.05). Financial inclusion, digital banking, and the prosperity of small and medium-sized enterprises are all explored, with the expectation that technological adaptability will prove to be a moderating factor.

Table 6
Moderation Analysis

Variable	Interaction Effect	Coefficient (β)	t-value	p-value
Financial Inclusion and Technological Adaptation	Yes	0.24	2.32	<0.05
Digital Finance and Technological Adaptation	Yes	0.18	1.96	<0.05

Source: SMEs of Pakistan, 2023

When comparing SMEs with different degrees of technical adaptation, the simple slope analysis found that the association between financial inclusion and SMEs' performance was larger for those with a high degree of technological adaptation (= 0.54, t = 3.20, p 0.01). In a similar vein, a high level of technological adaptation was associated with a stronger association between digital finance and SME performance (= 0.48, t = 2.86, p 0.01). The findings thus lend credence to hypotheses 3 and 4 of the study.

Table 7
Moderation Analysis

Variable	Technological Adaptation Level	Coefficient (β)	t-value	p-value
Financial Inclusion	High	0.54	3.2	<0.01
Digital Finance	High	0.48	2.86	<0.01

Source: SMEs of Pakistan, 2023

These results demonstrate the necessity of preserving a versatile technical infrastructure at the intersection of growing SMEs, digital banking, and broadening access to financial services. Small and medium-sized enterprises (also known as SMEs) play a crucial role in achieving financial inclusion and digital banking objectives because of their propensity to acquire and utilize cutting-edge technologies. For this reason, governments and financial institutions must equip SMEs with the resources they require to better adapt to emerging technology.

Discussion

Our research suggests that SMEs might benefit from simplified access to banking services (Goyal et al., 2018). These results provide support to the statements made by previous studies that highlighted the importance of capital availability for SMEs (Beck et al., 2014). In short, we reasoned that if a wider range of financial services were available to SMEs, then those businesses would be more inclined to invest in themselves, perhaps increasing their productivity.

Based on the findings of our research (Aterido et al., 2011), SMEs may benefit from using digital financing. This supports earlier results (Frost et al., 2016; World Bank, 2014) that digital finance has benefits for SMEs, such as easier access to financing and lower transaction costs. Our research suggests that online channels may provide SMEs with access to a greater range of funding options. Our findings suggest that financial inclusion's growth-promoting effects on SMEs are tempered by other variables. To a larger extent than their less flexible competitors, we found that enterprises with a higher propensity for change benefited from financial inclusion. SMEs that want to take advantage of the advantages of financial inclusion must be willing to adopt new technology. Harris et al. (2017) found that the degree to which SMEs adopted new technologies moderated the relationship between SMEs' usage of digital finance and their success. Our research showed that those who were open to trying new things were the ones who ended up using digital banking the most. It is underlined that the willingness of small and medium-sized firms to accept and employ digital finance technology is crucial to the expansion of digital finance.

Implications

The results of this research have far-reaching implications for Pakistan's SMEs. This study demonstrates how financial inclusion and digital banking may boost productivity in SMEs, but only if those businesses learn to properly use the new resources at their disposal.

The economic situation in Pakistan might make it difficult for small and medium-sized businesses to get bank loans. Data given by the State Bank of Pakistan indicates that only a small fraction of Pakistan's SMEs utilize traditional banking services. Lack of readily available finance limits small and medium-sized business development opportunities. The government of Pakistan must eliminate barriers to accessing commercial banking services for micro, small, and medium-sized enterprises. The research suggests that small and medium-sized enterprises (SMEs) may use digital finance to get better access to various forms of funding. Only around 5 percent of Pakistanis now utilize mobile money, which shows how slowly the country is adopting digital banking technologies. Therefore, encouraging small and medium-sized enterprises in Pakistan to switch to internet banking is crucial.

The findings suggest that small and medium-sized enterprises (SMEs) with tech-savvy employees might gain from digital banking and financial inclusion. More

widespread adoption and use of digital finance technology and financial services by Pakistan's SMEs will have a significant positive impact on the country's economy. Being able to effectively use available technology is essential. The findings suggest that for Pakistan's small and medium-sized enterprises (SMEs) to thrive, the government should prioritize promoting financial inclusion, digital banking, and encouraging technological adaptation.

CONCLUSION AND RECOMMENDATIONS

This research set out to answer the question, "Does financial inclusion lead to higher output by small and medium-sized enterprises (SMEs)? and digital banking and, if so, how technology's mitigating effect on this connection requires mentioning. Evidence suggests that SMEs may benefit from both financial inclusion and digital finance and that this effect is amplified by technical innovation. Small and medium-sized companies (SMEs) have financial inclusion, in general, and digital banking in particular, since these individuals are more likely to be pioneers in the adoption of new technology.

The results may be of tremendous use to the Pakistani government, Pakistan's banking system, and Pakistan's small and medium-sized businesses. Policymakers should prioritize increasing access to digital financial services, making it easier for more individuals to invest in small and medium-sized companies by lowering the barriers to entry for financing these enterprises. To help small and medium-sized businesses (also known as SMEs) have easier access to capital and decrease transaction costs, banks and other kinds of financial institutions should provide a wide range of services that use digital technology. This is one method to improve the help given to small and medium-sized businesses. Financial inclusion and digital banking might be useful for small and medium-sized firms (also known as SMEs) if they put a high value on embracing new technologies and improving their abilities.

Limitations and Future Direction

The conclusions can only be applied to the Pakistani context because the study solely focuses on that country. Financial inclusion, digital finance, technological adaptation, and SMEs' performance are all examined, although causal correlations cannot be established because of the study's cross-sectional approach. The study focuses solely on how financial inclusion and digital finance affect SMEs' performance, ignoring any other factors that might affect SMEs' performance. Self-reported data are used, which may introduce social desirability bias or measurement error into the study. Future research utilizing longitudinal methods may help establish causality among financial access and the increase of micro, small, and medium-sized businesses (SMBs), accompanied by the rise of digital financing and technological advancements. Market and resource access; access to talent, and infrastructure are just a few of the potential elements that could affect SMEs' success and could be investigated in future studies. Self-reported data may need to be verified through the use of secondary or administrative data in future studies. Microenterprises and high-growth companies are two categories of SMEs, and there needs to be greater study of how financial inclusion and digital banking affect them.

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