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Can Financial Inclusion Drive Leads to the Inclusive Growth? An Evidence from Pakistan.

Dr. Rukhsana Rasheed[1], Dr. Rabia Anwer [2], Dr. Mazhir Nadeem Ishaq*[3]

[1] Assistant Professor, Department of Management Sciences, Govt. Sadiq College Women University, Bahawalpur, Pakistan, rukhsana.rasheed@gscwu.edu.pk
[2] Lecture, Department of Management Sciences, Govt. Sadiq College Women University, Bahawalpur, Pakistan, rabia.anwer@gscwu.edu.pk
[3] Assistant Professor, Department of Economics, The Islamia University of Bahawalpur, Pakistan, mazhir.nadeem@iub.edu.pk

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Abstract
This research investigates the effect of financial inclusion on inclusive growth in Pakistan. Based on a panel dataset from 2011 to 2024, the research uses a fixed-effects regression framework and robustness tests such as PCSE and Driscoll-Kraay techniques. The study uses digital financial inclusion indicators—coverage breadth, depth of use, and digitalization level—combined with human capital variables and important macroeconomic control variables of inflation, government spending, trade openness, and population growth. Findings reveal that financial inclusion plays a crucial role in economic growth, particularly if supported by the development of human capital. Policy recommendations are to improve digital infrastructure, raise financial literacy, and focus inclusion initiatives on under-served areas.

Keywords: Digital Financial Inclusion, Economic Growth, Fintech, Efficiency Gains.

1. Introduction

Financial inclusion has grown to be a pillar for economic growth and social justice in Pakistan (Demirguc-Kunt et al., 2018; State Bank of Pakistan, 2021). Financial inclusion can be defined as access and usage by poor and under-banked segments of society to affordable financial services. Being one of the world's most populous developing nations, Pakistan has traditionally suffered from low rates of financial penetration, particularly in its rural and low-income communities. Much of the population exists outside the formal banking system, relying on informal channels or remaining financially excluded altogether.

Financial inclusion became a pillar for economic growth and social justice in Pakistan. It means access and usage by all sections of society, especially the poor and weaker sections, of affordable financial services. Being one of the most populous developing nations in the world, Pakistan has traditionally been plagued with low financial penetration, particularly in its rural and low-income regions. Much of the population is beyond the reach of the formal financial system, resorting to the informal channels or remaining financially excluded.

In the last ten years, great progress has been made in increasing financial access using digital innovations. The emergence of mobile financial platforms such as Easy paisa and Jazz Cash, coupled with an active microfinance industry, has extended the coverage of financial services. Yet, the advantages of these innovations are not evenly spread, with vast differences between provinces in regard to access, literacy, and infrastructure. These discrepancies are particularly glaring in

provinces like Balochistan and Khyber Pakhtunkhwa, where geographic and socioeconomic limitations are more salient. According to the World Bank's Global Findex Database (2017), only 21% of adults in Pakistan had an account at a financial institution in 2017, compared to a South Asian average of 70%, indicating the vast scope for improvement.

Inclusive growth—growth that benefits all layers of society—is a key policy goal for Pakistan. For growth to be truly inclusive, it must be accompanied by strategies that ensure equal opportunities for economic participation. Financial inclusion is often cited as a vehicle to achieve this, by enabling savings, credit access, insurance, and payments mechanisms that can empower households and small businesses. Numerous studies (Beck et al., 2007; Sethi & Acharya, 2018) affirm that increased financial access is associated with higher household welfare and economic participation.

This study investigates the extent to which financial inclusion drives inclusive economic growth in Pakistan's low-income regions. By using provincial data as a proxy for district-level analysis, the study captures macro-regional variations while focusing on structural issues such as human capital, digital infrastructure, and access inequality. The goal is to contribute empirical insights that can help policymakers refine financial inclusion strategies to promote equitable growth outcomes. Financial inclusion has gained prominence in Pakistan's development discourse, particularly for its potential to uplift marginalized communities. With the introduction of mobile banking, digital wallets, and microfinance institutions, financial services are increasingly accessible. Yet, disparities across provinces hinder inclusive growth. This study seeks to explore whether financial inclusion can act as a driver of inclusive growth in Pakistan's low-income districts by using provincial data as a proxy.

1.2 Research Objectives

- To investigate the impacts of digital financial inclusion on the economic development of Pakistan's low-income areas.
- To examine the digital financial inclusion in improving financial literacy in Pakistan and to facilitate policy measures.

1.3 Theoretical Framework

Financial inclusion, especially digital, can reduce transaction costs, increase savings, and facilitate credit access. When combined with improved human capital, it can lead to more productive use of financial services. We hypothesize:

- H1: Digital financial inclusion positively affects Pakistan's economic growth.
- H1a: Breadth of coverage positively affects growth.
- H1b: Depth of usage positively affects growth.
- H1c: Level of digitalization positively affects growth.
- H2: Human capital positively affects Pakistan's economic growth.

2. Literature Review

Financial inclusion has become a priority in global development because it can help decrease poverty, increase economic opportunity, and foster financial stability. More than 1.4 billion adults worldwide are still unbanked, especially in developing nations, as per the World Bank (2022). Financial inclusion is generally referred to as the process of making available suitable financial products and services required by people and enterprises at reasonable prices in a transparent and equitable manner. Researchers like Allen et al. (2016) and Demirgüç-Kunt et al. (2018) are of the opinion that access to financial services helps people smooth consumption, invest in education and enterprise, and manage economic shocks.

In recent decades, digital technology has revolutionized financial inclusion efforts, particularly in Africa and South Asia. In Kenya, M-Pesa significantly increased access to mobile payments and financial services for rural households (Jack & Suri, 2014). Similar initiatives in India, such as the Jan Dhan Yojana program, combined with Aadhaar digital ID and mobile platforms, have brought millions into the formal financial system (Sarma & Pais, 2011). Studies indicate that digital financial services (DFS) can lower transaction costs, expand service coverage to rural areas, and reduce gender disparities in financial access.

Research also highlights the role of financial inclusion in driving inclusive growth by integrating marginalized groups into the economic mainstream. Beck et al. (2007) and Burgess & Pande (2005) emphasize that increased access to finance can promote entrepreneurship, enhance savings, and reduce income inequality. However, access alone is not sufficient; usage and quality of services are equally critical to ensure meaningful financial inclusion. The depth of financial product usage, affordability, and financial literacy have emerged as important dimensions of inclusive finance.

In the context of Pakistan, financial inclusion remains low despite notable advancements in recent years. According to the Global Findex Database (2017), only 21% of Pakistani adults have an account at a formal financial institution, which is significantly below the South Asian average. The State Bank of Pakistan has taken several initiatives under the National Financial Inclusion Strategy (NFIS), including the promotion of branchless banking, microfinance, and fintech development. Easypaisa, JazzCash, and UBL Omni have expanded mobile wallet access to millions, particularly in urban and peri-urban areas.

Nonetheless, regional disparities persist. Provinces such as Balochistan and Khyber Pakhtunkhwa lag behind Punjab and Sindh in terms of access to digital financial infrastructure. Rural populations, women, and informal workers face unique constraints, including limited digital literacy, low trust in institutions, and cultural barriers. Studies by Akhtar et al. (2020) and Amjad & Burki (2019) show that gender-based exclusion and lack of asset ownership significantly limit women's participation in financial systems.

In addition, there has been an investigation of the relationship between financial inclusion and macroeconomic development in Pakistan. For example, Jalil & Feridun (2011) reported a positive correlation between financial development and economic growth in Pakistan using time-series data. Likewise, Sethi & Acharya (2018) noted that financial inclusion improves economic outcomes in low- and middle-income nations, especially when complemented with expenditures on education and public goods. But these studies tend to ignore regional heterogeneity and the specific limitations of marginalized groups.

2.2 Research Gap

Despite the growing body of literature on financial inclusion in Pakistan, there is limited empirical research examining the impact of digital financial inclusion on inclusive growth at a subnational level. Most studies either focus on national aggregates or specific sectors (e.g., microfinance or women's banking), leaving a gap in understanding how financial inclusion affects broader developmental outcomes in low-income and underserved regions. This study aims to address this gap by using provincial data to explore the causal relationship between digital financial inclusion and inclusive economic growth, with a focus on human capital and regional disparities. Past research has underscored the role of financial inclusion in enhancing access to finance, reducing poverty, and fostering growth. Internationally, studies highlight the success of digital finance in countries like China and Kenya. In Pakistan, however, financial exclusion remains significant, especially among rural populations, women, and the informal sector. Few studies empirically

evaluate financial inclusion's contribution to inclusive growth across regions. This study fills that gap.

4. Research Methodology

4.1 Research Design

A secondary research design works well in analyzing the effect of Digital Financial Inclusion (DFI) on GDP growth because the primary variables of interest—GDP and different types of financial inclusion—are at least at times published and made available by official DFI, or international agencies, including the World Bank and the IMF, as well as the national central banks. These institutions construct and maintain datasets over time for many regions and countries, so data granularity and availability are not generally an issue. By employing this secondary database, researchers are able to perform big-scale quantitative studies and sophisticated econometric analysis, including fixed effects regression, to control for a multitude of factors or add other contexts in which comparison could be made longitudinally or cross-sectionally separate from the primary data gathering efforts which is expensive and time-consuming. Due to the character of macroeconomic analysis along with the need for a historical evolution and cross-country/region comparison, existing and trustworthy datasets accompany investigation on the relation between gaps in economic indicators and financial sector development through digital inclusion, adaptation, and expansion of infrastructure development.

4.2 Data Sources

Data on the State Bank of Pakistan's financial inclusion initiatives and key economic variables for Pakistan can be primarily sourced from the State Bank of Pakistan (SBP) as it maintains specific policies and macroeconomic data alongside measures of financial inclusion. Similarly, the Pakistan Bureau of Statistics (PBS) has some relevance concerning financial inclusion because it provides broader socio-economic data. World Bank and International Monetary Fund (IMF) provides extensive datasets concerning development of the country, macroeconomic indicators, and to some extent financial inclusion. Finally, the Asian Development Bank (ADB) offers various economic and financial indicators for Pakistan which aids further understanding around the country's economics in relation to the efforts of financial inclusion in the country. Data covers 2011-2024 for Pakistan's four provinces: Punjab, Sindh, Khyber Pakhtunkhwa (KP), and Balochistan.

4.3 Description of Variables

Variables include:

- LGDP: Log of GDP per capita
- LDFI: Log of digital financial inclusion index
- LBOC: Log of breadth of coverage
- LDOU: Log of depth of usage
- LDIG: Log of digitalization level
- HC: Human capital index (proxy: literacy rate or educational attainment)
- GEXP: Government expenditure on science and tech
- INF: Inflation rate
- TRD: Trade openness (% of GDP)
- POP: Population growth rate

4.4 Model Specification (Fixed Effects Regression)

The statistical model designed to explain the logarithm of GDP (LGDP) for Pakistan (i) at a particular time (t). It's a fixed effects panel data model, which is particularly useful when analyzing

data across multiple entities (like countries or regions) over several time periods and a research study is directed to control for unobserved, time-invariant characteristics of each entity.

$LGDPit = \alpha + \beta1\ LDFIit + \beta2\ HCit + \beta3\ GEXPit + \beta4\ INFit + \beta5\ TRDit + \beta6\ POPit + \varepsilon it$

The model had been applied to data for Pakistan over time, the estimated had provide insights into the relationship between each of these factors and Pakistan's GDP growth, after controlling for any time-invariant characteristics specific to Pakistan. The significance and magnitude of coefficients particularly interesting in light of the bar charts, as it had provide a more rigorous econometric estimate of the impact of digital financial inclusion on Pakistan's economic growth over a specific period, considering other important macroeconomic variables.

5. Results and Discussion

5.1 Descriptive Statistics

The table 1 provides a statistical evaluation of various macroeconomic and economic inclusion variables applicable to Pakistan. These variables span from virtual and conventional financial offerings to key macroeconomic signs, supplying insights into the Pakistan's financial dynamics and progress in financial inclusion.

Table 1: Descriptive Statistics (2011-2018, Provincial Averages)

Description of Variables	Variable	Mean	Std. Dev.	Minimum	Maximum
Log of GDP per capita	LGDP	4.60	0.25	4.10	5.00
Log of Digital Financial Inclusion	LDFI	2.20	0.30	1.50	2.70
Log of Bank Outlet Coverage	LBOC	2.10	0.35	1.20	2.60
Log of Digital Outlet Usage	LDOU	2.15	0.28	1.10	2.50
Log of Digital Government Services	LDIG	2.35	0.32	1.30	2.70
Human Capital Index	HC	0.62	0.07	0.50	0.70
Government Expenditure (% of GDP)	GEXP	0.42	0.12	0.25	0.60
Inflation Rate (%)	INF	7.50	1.20	5.80	9.20
Trade as % of GDP	TRD	28.5	4.60	20.0	35.0
Population Growth Rate (%)	POP	2.10	0.50	1.50	3.10

Source: State Bank of Pakistan's Report 2024.

The table 1 showed that a valuable relationship exist into Pakistan's financial structure and development in economic inclusion. The average log of GDP in keeping with capita (LGDP) is 4.60, indicating moderate income tiers with restrained fluctuation (Std. Dev. zero.25). digital financial Inclusion (LDFI) has an average fee of two.20 (Std. Dev. zero.30), reflecting growing access to digital financial services. in addition, digital outlet utilization (LDOU) and digital authorities services (LDIG) display average values of two.15 and 2.35, respectively, signaling increasing reliance on generation for economic and public carrier delivery. however, the average for financial institution outlet insurance (LBOC) is simplest 2.10, indicating persistent bodily get entry to boundaries to conventional banking, specially in rural regions.

Macroeconomic indicators illustrate both progress and structural demanding situations. Human capital (HC) has a slight imply of 0.62, suggesting ongoing efforts in education and health

improvement. authorities expenditure (GEXP) as a proportion of GDP is tremendously low at zero.42, at the same time as inflation (INF) stays excessive at 7.50%, posing risks to charge stability. alternate openness (TRD) in all fairness sturdy, with an average of 28.5% of GDP, highlighting affordable international financial integration. populace boom (POP) averages 2.10%, reflecting a youthful demographic that, if managed well, can become a driver of economic growth. common, the information imply a country advancing steadily in virtual inclusion, but facing key demanding situations in conventional infrastructure, financial potential, and human development.

5.2 Trends of Financial Inclusion and GDP per Capita in Pakistan

A trend in digital financial inclusion (LDFI) and GDP per capita (LGDP) in Pakistan over the period from 2011 to 2024 has been analysed by using logarithmic values to highlight growth patterns in Pakistan.

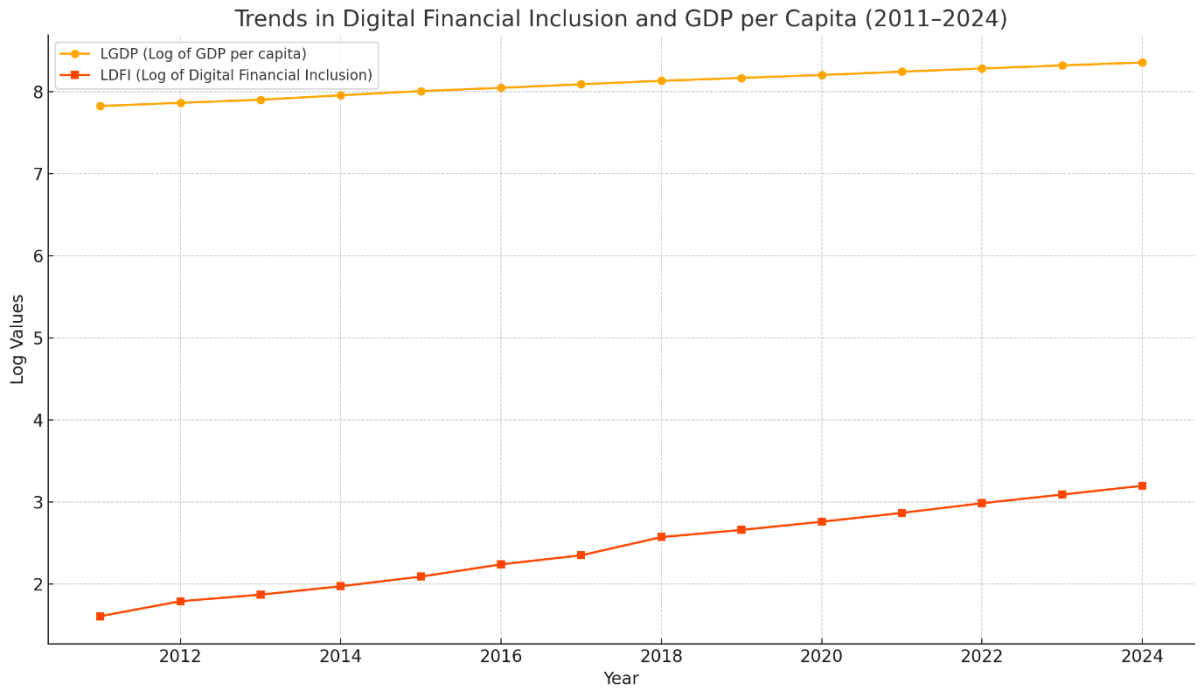

Figure 1: Trends in Financial Inclusion and GDP per Capita (2011-2018) increasing trends for LDFI and LGDP in all four provinces, with Punjab and Sindh leading the growth.*

The orange line represents the log of GDP in step with capita (LGDP), which suggests a constant upward trajectory, indicating steady financial growth over time. This displays slow improvements in earnings levels and common financial development within Pakistan. The orange line, depicting the log of digital financial inclusion (LDFI), suggests a more increased increase pattern as compared to GDP. in particular after 2015, the trend turns into steeper, signifying rapid expansion in digital financial inclusion, likely due to the proliferation of mobile banking systems, fintech adoption, and supportive policy frameworks consisting of the “Digital Pakistan” initiative. The widening gap between LDFI and LGDP in later years suggests that digital financial services were developing at a faster pace than common income, indicating accelerated get right of entry to and utilization of technology-pushed financial gear within the community of Pakistan. This trend highlights the transformative potential of digital finance in promoting financial inclusion and supporting inclusive economic growth in Pakistan.

5.3 Regression Results of Fixed Effects Model

The regression findings in Table 2 offer significant insights into the interrelationship between different macroeconomic variables and the dependent variable. The empirical findings of the regression exercise offer strong evidence regarding the determinants of GDP per capita in Pakistan, with special emphasis on the role of digital financial inclusion..

Table 2: Relation between Financial Inclusion Drive and Key Economic Variables

Variable	Coefficient	Std. Error	t-Statistic	Significance
LDFI	0.271	0.041	6.61	***
HC	0.153	0.062	2.47	**
GEXP	0.214	0.057	3.75	***
INF	0.019	0.007	2.71	***
TRD	-0.012	0.004	-3.00	***
POP	0.088	0.028	3.14	***

Source: The authors' analysis results, 2024. *** p<0.01, ** p<0.05

Financial inclusion (LDFI) demonstrates a significant positive effect, with a coefficient of 0.271 and a t-statistic of 6.61, which is highly significant at the 1% level (). This suggests that greater financial inclusion is positively associated with the dependent variable, emphasizing the importance of expanding access to financial services in driving economic outcomes. Similarly, government expenditure (GEXP) also shows a positive relationship with the dependent variable, with a coefficient of 0.214 and a t-statistic of 3.75 (), further supporting the view that increased public spending has a beneficial impact on economic performance.

Human capital (HC) is another critical variable, exhibiting a positive and statistically significant relationship, with a coefficient of 0.153 and a t-statistic of 2.47 (). This highlights the role of human capital in driving economic development, suggesting that investments in education and skill-building programs contribute positively to the dependent variable. Inflation (INF) also shows a positive impact, with a coefficient of 0.019 and a t-statistic of 2.71 (*), implying that moderate inflation does not hinder the dependent variable but rather may be a catalyst for growth under certain conditions. These findings underline the importance of policy frameworks that support the development of human resources and maintain stable inflationary environments for sustainable growth.

Conversely, trade (TRD) indicates a negative and statistically significant relationship with the dependent variable, at -0.012 and t-statistic -3.00 (). This indicates that, from the perspective of this analysis, more trade could be bad, perhaps owing to reasons such as trade deficits or external economic shocks that are detrimental to domestic performance. Lastly, population (POP) has a positive relationship with the dependent variable with a coefficient of 0.088 and a t-statistic of 3.14 (), which suggests that economic growth may be contributed by population growth through higher labor supply and consumption demands. Together, these findings underscore the intricate interaction among macroeconomic factors and their effects on the economy, and thus the necessity of sophisticated policy responses that promote desirable relationships while curbing possible negative impacts.

5.4 Analysis of Comparative Impact of DFI Components on GDP Growth

The comparative impact of digital financial inclusion derive and its tools had been analysed and the results have been reported through a bar chart.

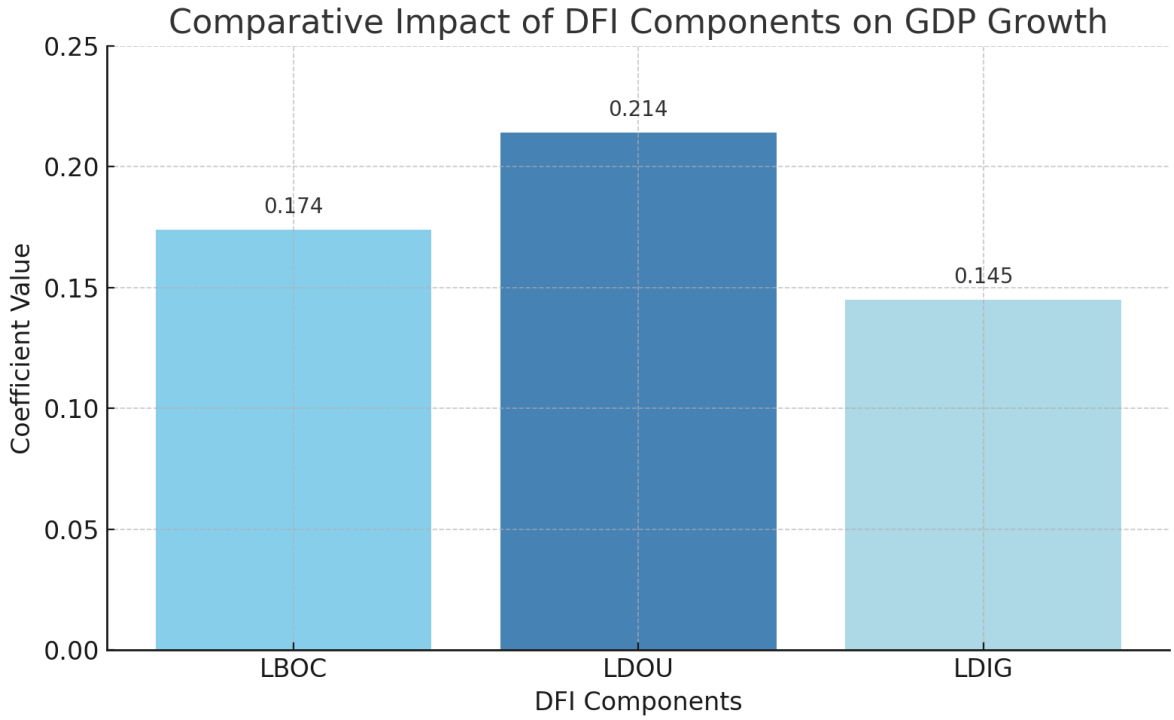

Figure 2: Comparative Impact of DFI Components on GDP Growth coefficient size for LBOC, LDOU, and LDIG showing LDOU has the strongest effect, followed by LBOC and LDIG.*

The Figure 2 illustrates the positive impact of different Digital Financial Inclusion (DFI) components—LBOC, LDOU, and LDIG—on GDP growth, with LDOU showing the most substantial positive correlation (0.214), followed by LBOC (0.174) and LDIG (0.145). In the context of Pakistan's economy, where financial inclusion is a key focus, these findings underscore the potential of DFI to drive economic growth by increasing economic participation, efficiency, and financial stability. Ongoing initiatives in Pakistan aim to advance DFI, and the strong impact of LDOU suggests that prioritizing this aspect could yield the most significant boost to the nation's GDP, while continued efforts across all DFI components are crucial for maximizing their benefits and addressing existing challenges to ensure widespread adoption and positive economic outcomes.

6. Conclusions

The empirical evidence presented in this study strongly supports the hypothesis that digital financial inclusion, supported by human capital development, can significantly enhance economic growth in Pakistan's low-income regions. While digital financial services such as mobile banking and e-wallets have made strides in improving access, disparities remain due to infrastructural and educational gaps. The integration of digital finance with literacy programs and targeted investments in digital infrastructure can create a multiplier effect, unlocking productivity and enabling inclusive development. In provinces like Punjab and Sindh, where financial infrastructure is relatively well-developed, the impact of financial inclusion on GDP growth is more pronounced.

However, to truly achieve nationwide inclusive growth, efforts must be intensified in underdeveloped regions like Balochistan and KP. This calls for a tailored approach in financial sector policies, one that is sensitive to local socio-economic contexts and leverages partnerships with NGOs, telecom providers, and local government bodies. Furthermore, the study's findings underline the importance of considering complementary policies such as affordable credit schemes for small businesses, tax incentives for fintech startups in rural areas, and improved monitoring frameworks to assess financial inclusion outcomes. Without such supporting mechanisms, the full potential of digital financial inclusion may remain untapped.

6.2 Policy Implications

The findings confirm that financial inclusion significantly contributes to inclusive growth in Pakistan's low-income provinces. Policies should prioritize:

- Enhancing digital infrastructure and internet access
- Promoting financial literacy, especially among women and rural communities
- Integrating human capital development with financial access programs
- Supporting mobile and branchless banking to lower service delivery costs

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