

THE DYNAMICS OF RURAL URBAN FINANCIAL INCLUSION GAP: A CASE STUDY OF DISTRICT SWAT

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ABSTRACT

Financial inclusion plays a vibrant role of encouraging economic development by maintaining easy access to financial services for all sectors of the society. However, a significant disparity exists among rural and urban areas, often delaying the inclusive growth. This study scrutinizes the dynamics of rural-urban financial inclusion gap, in case of Swat district as a case study. The study observes the key factors contributing to the disparities, including infrastructural limitations, socioeconomic factors, and digital literacy.

The primary data was collected through surveys, interviews, and focus group discussions with stakeholders, including households, local financial institutions, and policymakers. The study reveals that urban areas in Swat exhibit higher levels of financial inclusion due to better access to banking infrastructure, digital financial services, and awareness programs. Conversely, rural areas face challenges such as limited access to financial institutions, cultural constraints, and inadequate technological adoption.

The findings highlighted the need for targeted policy interventions, such as escalating banking networks, improving financial literacy programs, and promoting inclusive financial technologies to bridge the rural-urban gap. This study contributes to the broad dissertation on the financial inclusion by providing thoughtful understandings for policymakers and financial institutions motivation to create a more reasonable financial environment by developing the regions.

Keywords: Financial Inclusion, Income, rural urban Gap.

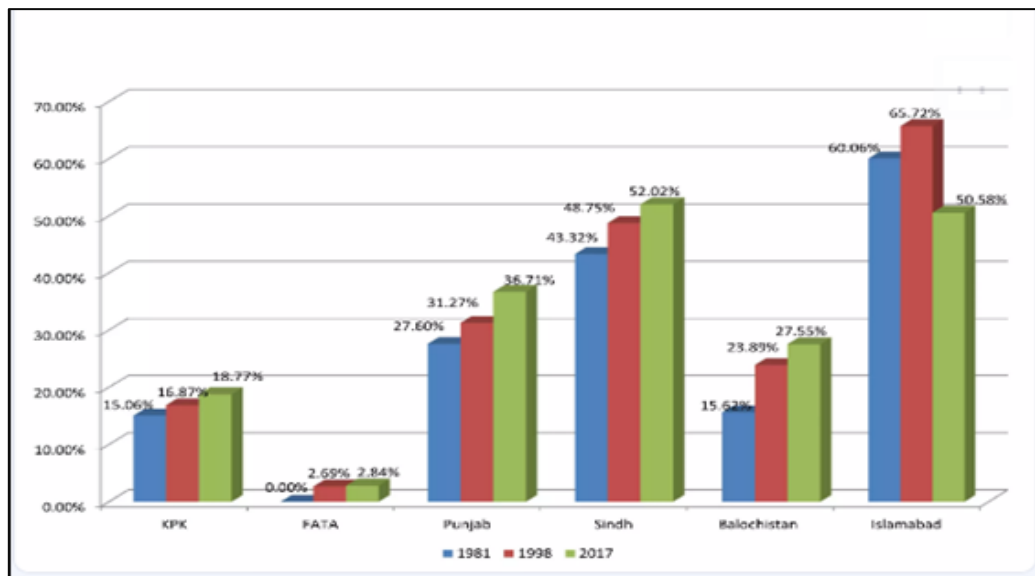
INTRODUCTION

Financial inclusion, ensures the availability and easy access of the individuals and business to the financial product and services, which is the fundamental component of economic development. Financial inclusion covers the basic access to banking Services, i.e., credits, savings, and insurance services, these are the essential components for individuals and business to manage their finances effectively. Future financial investment, focus to improve their overall quality of life and enhance the availability of financial inclusion. Financial inclusion shows a vibrant role in the poverty eradication, encourage economic growth, and promoting the social equity. However, by achieving the

comprehensive financial inclusion access, the objective remains a significant challenge, particularly in developing regions where disparities among urban and rural areas are obvious.

Financial inclusion has emerged as a serious booster of economic development, enabling businesses and individuals to access essential financial services, that promote growth, reduce poverty, and improve overall well-being. However, disparities in access to financial resources among the rural and urban populations continue to pose significant challenges, particularly in the emerging regions. This thesis examines *The Dynamics of Rural Urban Financial*

Inclusion Gap, focusing on the District Swat of Pakistan as a case study.



Graph 1.1: Urban Population Share from 1981 to 2017

Source of Graph: Pakistan Censuses 2017

The Khyber Pakhtunkhwa (KPK), province offers a distinctive case study for analyzing the disparities in financial inclusion between urban and rural areas. KPK, has a varied population mix, socioeconomic complications, and a diverse geography, all of which have a big impact on the region's financial environment. The Pakistan Digital Census for 2023 estimates that there are 40.8 million people living in KPK, up 5.3 million from 2017 at a growth rate of 2.3%. In 2017, 35.5 million people called the province home, according to the government statistics. Census data elaborates, just six million people in KP live in urban areas, and over 34 million people live in rural regions. The population of the provincial capital of KPK, Peshawar, grew by 426,803, rising from 4.3 million in 2017 to 4.7 million, with a growth rate of 1.5 percent.

Currently, Pakistan is the sixth least banked nation worldwide. Only ten percent of people have bank accounts, meaning that over fifty percent of people who are financially viable are not included in either the formal or informal financial sectors. Furthermore, the informal sector supports 36% of individuals who are already receiving services. In Pakistan, around 35% of the microfinance has reached the Peri-urban and urban regions, despite the fact that financial access in rural areas is still very limited. Particularly poorly served are small-scale farmers,

only 29% of them are completely excluded from the market and the majority of them have limited access to the formal financing.

The implication of this study is to generate evidence for the policy interventions and the socio-economic development strategies which are designed according to identify the local problems of swat. The Brief focus on identifying these challenges which are faced by the rural populations, when trying to access financial services, as well as the solutions that can really help more people to get involved within and benefit from a financial system.

2. Objectives of the Research Study

The research study intends to emphasis on the swat region to achieve the objectives as follow:

- i. To identify and analyze the scope of the financial Inclusion gap focusing on the rural and urban areas of Swat district.
- ii. To identify and measure the phenomenon that up to what extent the financial inclusion impacts the socio-economic development of rural and urban communities of swat.

3. Research Questions

1. What are the main key factors contributing to the financial inclusion gap among the rural urban areas in District Swat?
2. How does the level of financial literacy differ among the rural urban residents of District Swat?

3. What role do socio-economic factors play in shaping financial inclusion in the rural urban areas of District Swat?

4. Hypothesis

The term to obtain the final result of the study, the assumption has been made to signify the effect of financial inclusion, on the socio-economic development of the rural urban areas of swat, and also to signify the disparities in the FI amongst the rural urban areas of swat.

Hypothesis 1: There is a significant disparity in the financial inclusion, amongst the rural urban areas of Swat, with the urban regions having higher levels of financial inclusion as compared to the rural areas.

Hypothesis 2: There is a significant effect of financial inclusion, on the socio-economic development of the rural and urban communities of swat.

Hypothesis 3: The socio-economic indicators like Income, Income source, financial inclusion access, education, and employment have substantial effect on the financial inclusion of rural and urban areas of swat.

5. METHODS AND TECHNIQUES

Research Design

The study applies mixed method approach, by measuring quantitative and qualitative research methods, was used to understand the rural-urban financial inclusion gap in KPK. Structured questionnaire is prepared and thoroughly filled to attain the best possible numerical data by involving quantitative component, while by conducting interviews and group discussions, to gather the comprehensive understandings of the qualitative element.

Study Area

Swat district is the core demographic playing field where the research study was conducted in various Tehsils, which represents both rural and urban areas. There are almost 8 tehsils (Babozai, Charbagh, Barikot, Kabal, Kwazakhela, Matta, Bahrain and Kalam) in Swat district, which is further divided into 65 Union Councils, where 56 rural and 9 Urban areas. Representation from every tehsil was mandatory, for the authenticity of the data. Selections of various tehsil was ensured to achieve a diverse representation of the swat demographic and socio-economic appearances.

Population and Sampling

The target population of Swat includes residents, from both rural and urban regions. The Population size of the research will include the respondents between 20-80 years of age. The estimation of the sample size is based on the population where the study is accomplished, respondents of 386 in total is selected, where 308 from rural areas and 78 respondents from the urban areas.

Stratified random sampling was collected and used to confirm representation from both rural and urban areas of swat District. Within each tehsil, the respondents are selected randomly from every tehsil of swat.

Data Collection Methods

i. Quantitative Data Collection

A detailed and structured questionnaire was prepared and collected quantitative numerical data on numerous facts about financial inclusion comprising of FI access, usage, education, income, barriers, and socio-economic impacts, from various selected respondents.

ii. Qualitative Data Collection

Individual's interviews and discussion were arranged, and accompanied with community leaders, to attain deeper understandings into the financial inclusion gap.

QUESTIONNAIRE DESIGN

The questionnaire for this study covered numerous features of financial inclusion, comprising to access financial services, adoption of these services, barriers faced, and socio-economic development factors.

DETERMINATION OF SAMPLE SIZE

To determine a suitable sample size for this research requires a consideration of some factors, which includes the population size, desired confidence Interval, error margins and variability of the population. To ensure reliable and valid findings in my investigation about the financial inclusion gap within the rural and urban areas of Swat, it is essential to have a statistically significant sample size.

Factors to be Considered

i. Population Size:

Swat has an over 2.687 million populations which are a mix of both rural dwellers and urbanites. The rural areas have 86.17% while cities have 13.83% per cent people according to recent estimates.

ii. Confidence Level:

Social sciences generally use 95% confidence level, which means I am confident to say most of the proportionate sample reflects the population with an accuracy of 95%.

iii. Margin of Error:

There is usually acceptable percentage error range for social researches i.e. $\pm 5\%$ that balances precision and feasibility.

iv. Variability (Standard Deviation):

Assuming maximum variability of ($p=0.5$) ensures the largest possible sample size thus providing a conservative estimate.

Sample Size Calculation

By using the formulas for estimating proportions:

$$N = z^2 \frac{p(1-p)}{e^2}$$

N = Population Sample Size

Z = Z-value (1.96 for 95 % Confidence interval)

p = estimation of proportion (0.5 for max. variability)

e = error margins (0.05)

Calculating the values:

$$N = \frac{(1.96)^2 \cdot 0.5 \cdot 0.5}{(0.05)^2}$$

$$N = \frac{(3.8416)(0.25)}{(0.0025)}$$

$$N = 384.16$$

So, a sample size of 385 individuals will be required. The sample size is further divided into rural and urban areas as per the population size of the respondents in the area.

Adjusting for Population Proportions

Given the rural-urban divided, the sample would be proportionately representing both areas:

Rural Areas: 80% of the sample

Rural Sample Size: $0.80 \times 385 = 308$
 $385 = 308 + 77$

Urban Areas: 20% of the sample

Urban Sample Size: $0.20 \times 385 = 77$
 $385 = 77 + 308$

Final Sample Size

Total Sample Size: 385 individuals

Rural: 308 individuals

Urban: 77 individuals

The derived sample size confirms a representative distribution of respondents from both rural and urban areas, allowing us for strong and reliable investigation of the financial inclusion gap in Swat.

Purpose of the Research Study

The purpose of this study is to discover the dynamics of the financial inclusion gap among the rural urban areas of Swat. To develop prominent policies recommendations and identify the factors contributing to financial inclusion in rural areas, thus by promoting more reasonable economic development across the swat area. Achieving these goals, the research seeks to specify a complete understanding of the rural urban financial inclusion gap in the region of swat and suggest viable solutions to bridge this gap.

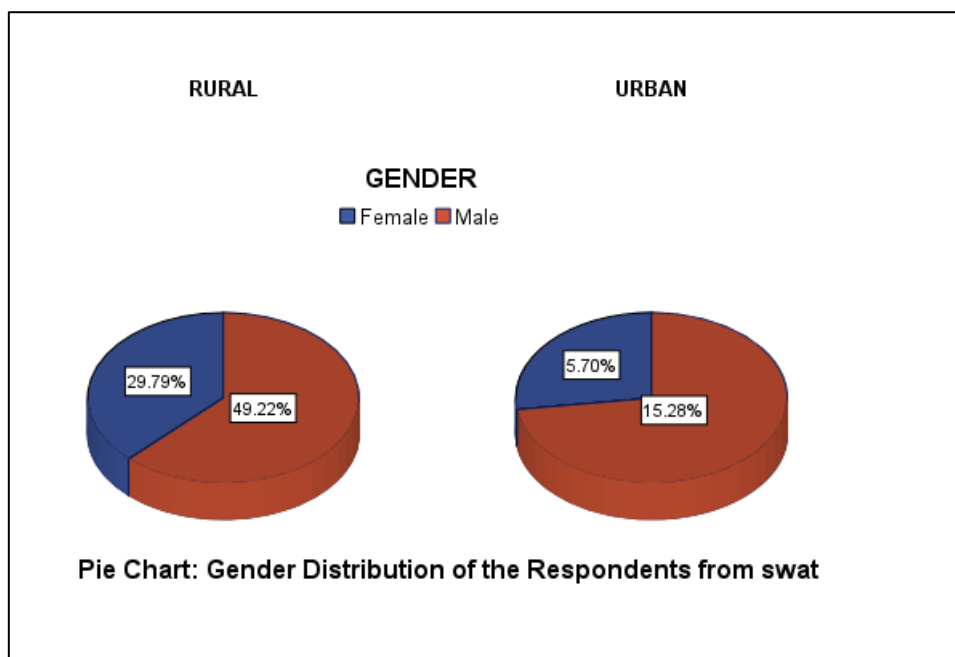
6. RESULTS AND ANALYSIS

The most important and core essential chapter of this research is to present the results obtained from the statistical analysis of the data obtained from the quantitative and qualitative approach, by using the SPSS. The findings address the objectives of the research, by concentrating on the dynamics of the rural and urban financial inclusion gap in District Swat. Inferential and Descriptive statistics are applied to scrutinize the disparities, by identifying and analyze the contributing factors, and measure the impact of the financial literacy, financial access, and socio-economic factors of financial inclusion.

Demographic Profile of the Respondents

Gender Distribution

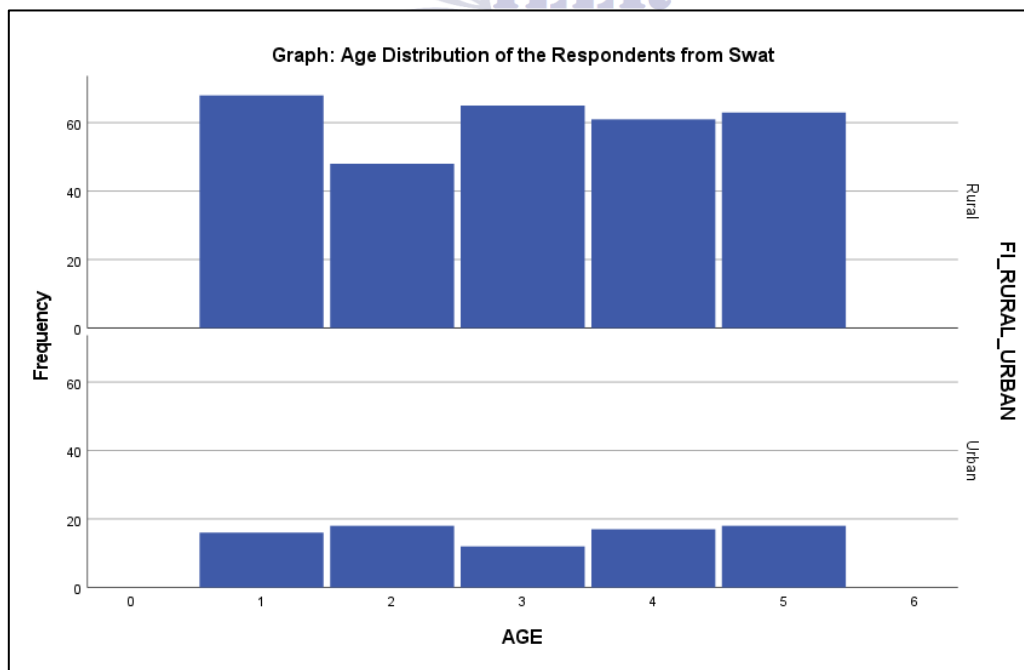
The gender distribution is expressed by a pie chart displaying the proportion of male and female respondents of rural and urban areas from swat.



Graph 1: Pie Chart Gender distribution of the respondents from swat

Age Distribution

Histogram is generated from the data which represents the age groups for rural and urban populations of swat



Graph 2: Histogram of age distribution of the respondents of district swat

Descriptive Statistics

Means, Standard Deviations, Variance and Skewness of (Financial Inclusion, Income,

Income Source, Financial Services Access, Financial Services Availability and Financial Inclusion Impact).

Table 1: Statistics of variables

		FI_Rural_Urban	Edu	Emp	Income	FS Access	Income Source	FS
N	Valid	386	386	386	386	386	386	386
Mean		1.21	2.53	1.98	2.52	0.46	2.45	2.83
Std. Error of Mean		.021	.081	.079	.088	.025	.082	.074
Std. Deviation		0.408	1.584	1.554	1.738	0.499	1.615	1.462
Variance		0.166	2.509	2.415	3.019	0.249	2.607	2.139
Skewness		1.431	-0.036	0.293	-0.035	0.146	0.043	0.205
Kurtosis		0.047	-1.136	-0.942	-1.272	-1.989	-1.136	-1.330
Range		1	5	5	5	1	5	4
Minimum		1	0	0	0	0	0	1
Maximum		2	5	5	5	1	5	5
Total		467	978	766	972	179	947	1094

Table 2: Descriptive Statistics Analysis

N	Min.	Max.	Mean	Std. Dev.	Variance	Skewness
Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
FI_Rural_Urban	386 0	1	0.21	0.021	0.408	0.166
Income	386 0	5	2.52	0.088	1.738	-0.035
Income Source	386 0	5	2.45	0.082	1.615	0.043
FS Access	386 0	1	0.46	0.025	0.499	0.146
FS Availability	386 1	5	3.48	0.059	1.156	-0.884
FI Impact	386 1	5	2.88	0.072	1.416	0.114
Valid N (list wise)	386					

Descriptive statistics analysis

This variable FI_RURAL_URBAN represents the level of financial inclusion in the rural urban areas of swat, capturing differences in the accessibility to financial services between these regions. It might be measured by using an index or a binary value. The rural-urban financial inclusion gap shows mean of 0.21, which highlights that a majority of the respondents are from rural areas. This impacts the accessibility and availability of the financial services as rural areas typically face more barriers. Lack of infrastructure, fewer financial institutions, and limited digital literacy can restrict access. Interventions needed focus on improving the financial inclusion specifically in rural areas.

The INCOME variable symbolizes the income level of individuals or households, typically measured in monetary terms of monthly earnings. Higher income is often associated with better financial access. A mean of 2.52 on a scale of 0-5 indicates a mid-level income distribution, but the high standard deviation (1.738) suggests economic disparity within the population.

uneven income distribution affects financial inclusion. Lower-income groups maybe face challenges by accessing or benefiting from the financial services. Financial services must be shaped to lower-income groups, such as microloans or subsidized accounts.

The INCOME_SOURCE variable identifies the primary source of income for an individual or household, such as employment, business, agriculture, or remittances. The respondent's income sources mean is 2.45 and the standard deviation of 1.615 indicate diverse and moderately stable sources of income but also reflect some dependency on the non-reliable or informal sources. The population might depend on the agriculture, labor, small businesses, especially in the rural areas, because of high standard deviation 1.615 and variance of 2.607. Encouraging formalized income sources through skill development or enterprise support can stabilize income flows and enhance financial access in the rural areas of swat.

The Financial Services Access (FS-Access), variable measures the ease of accessing the

financial services, of the banking sector, for credits, savings, and digital payment systems. It is often measured on a scale of binary variable, 0 and 1, the lower binary scale mean of access to FS is 0.46, which indicates that there is limited accessibility to the financial services, which is the critical hurdle to financial inclusion. Rural residence of swat likely faces more problems, such as distance from banks, lack of mobile banking, or restrictive policies. Lower mean statistic indicates that there is a gap among the rural and urban areas of swat. By bridging the access gap through mobile banking, financial institutions, and digital solutions will encourage the depressed communities of swat.

This FS_AVAILABILITY symbolizes the presence of financial service providers (banks, microfinance services provider, ATMs) in a given area. Availability differs from access, as services might exist but still be difficult to use. The mean of financial services availability is 3.48, this reflects a moderate opinion of FS availability, but the negative skewness which is -0.884 it suggests that many respondents view financial services as accessible, but not always operational. While services might exist, but rural populations may not fully have benefited due to literacy or affordability issues. By enhancing the usability of the services through financial literacy programs and affordable cost, and user-friendly services will encourage the local population rural swat.

This variable FI_IMPACT measures the consequence of the financial inclusion on the economic stability, poverty eradication, business growth. It is often measured through surveys or economic indicators. Mean value of financial inclusion is 2.88, which indicates a moderate impact of financial inclusion, but significant variation (SD = 1.416) suggests diversified experiences amongst the respondents. The Urban respondents report greater benefits due to better financial environments, whereas rural respondents face limitations. Efforts would focus on the targeted financial services which help the rural needs, such as microfinance, to increase alleged benefits.

Implications of Descriptive Statistics

FS_Access has a mean of 0.46, which is low on a scale of 0 and 1, suggesting that less than half of the respondents have access to formal financial services.

FI_Rural_Urban has a mean of 1.21 (on a scale where 1 = rural, 2 = urban), showing that a majority of the respondents were from rural areas, confirming the rural-centric nature of the data.

Implication: Financial access is limited, particularly in rural regions, and this supports the study's objectives of a rural-urban gap.

Income has a standard deviation of 1.738, suggesting a wide variation in income levels among respondents. A low standard deviation in FS Access (0.499) shows that responses are closely clustered, meaning that most of the respondents gave similar answers i.e., uniformly low access.

Implication: High variability in income might affect access to financial services, while consistent low access hints at systemic exclusion, not isolated cases.

Skewness measures the asymmetry of the data distribution. FI Rural Urban has a positive skew (1.431), indicating more rural than urban responses. Most other variables have skewness values close to 0, suggesting fairly symmetrical distributions.

Implication: The data is not heavily biased except in intended areas like rural urban classification supporting balanced representation and reliable analysis.

Kurtosis tells you about the "tailedness" of the distribution. Negative kurtosis values (e.g., Income = -1.272) indicate a flatter distribution, with more moderate responses and fewer deviation.

Implication: The responses are consistently moderate, which improves the reliability of the averages and reduces the impact of extreme values.

Skewness and Kurtosis

Skewness measures the asymmetry of the distribution of data. A skewness of 0 indicates a perfectly symmetrical distribution. Positive skew means the data tail is longer on the right (more low values). Negative skew means the tail is longer on the left (more high values). FI Rural Urban skewness is 1.431 which is Strongly positive skew, which indicates majority of responses are from rural areas (coded as 1), and fewer from urban.

Education skewness is -0.036 negative and near to zero which shows education levels are fairly symmetrically distributed. FS Access skewness is

0.146, which is mild positive skew and indicates a slightly more respondents lack financial service access.

The positive skewness for key variables like FI Rural Urban and FS Access supports the hypothesis, where most respondents are from rural areas and have limited access to financial services, which confirms the existence of the rural-urban gap.

Kurtosis measures the "tailedness" of the distribution. A kurtosis of 0 (in SPSS: excess kurtosis) means normal distribution. Positive kurtosis means more data in the tails. While the negative kurtosis is flatter distribution, fewer deviation. Most variables are negative kurtosis, meaning the data is widely spread out, indicating a diverse set of responses (e.g., income levels, education, employment) fewer extreme values, which is good for statistical reliability.

The positive skewness in key variables such as FS Access and FI Rural Urban indicates a predominance of low financial access and rural respondents, aligning with the study's focus. The negative kurtosis across most variables suggests a wide, flat distribution with fewer deviations, making the data healthy and representative for generalizing findings on the financial inclusion disparities.

Dynamics of the rural and urban variables

Rural dominance and low-income correlate with condensed access to the financial services. Moderate service availability does not necessarily translate into high impact due to usability and inclusion challenges.

The skewness in the variable FI_RURAL_URBAN and FS_ACCESS reflects the significant hurdles in the rural areas. Gaps in the income levels affect the ability to engage with financial systems effectively. Bridging the gaps in the infrastructure and access, is critical to increase the impact of financial inclusion particularly in the rural areas. Digital financial solutions may play a transformative role in the overcoming geographic and literacy obstacles.

Model variables

In this model the dependent variable is (*FI Rural Urban*) Financial Inclusion in rural urban area. Where the independent variables are income, Financial Services Access, education and employment.

$$FI\ Rural\ Urban = \beta_0 + \beta_1(Income) + \beta_2(FS_Access) + \beta_3(Education) + \beta_4(Emp) + \epsilon$$

Table 3: Model Summary

Model	R	R ²	Adj. R ²	Estimated Std. Error	Change Statistics				Sig. Change	Durbin-Watson F
					R ² Change	F Change	DF1	DF2		
1	0.615	0.379	0.372	0.323	0.379	58.038	4	381	<0.001	1.901

a. Dependent Variable: FI Rural Urban

b. Independent Variables: FS Access, EDU, Income, EMP

The model summary presents the results of a regression analysis, where the dependent variable is FI_RURAL_URBAN, and the independent variables are FS_ACCESS, EMP, INCOME, and EDU. The value of R is 0.615, which shows a moderately strong positive correlation among the dependent variable and the independent variables, suggesting that the predictors collectively explain a significant segment of the variation in the FI_RURAL_URBAN. The value of R² is 0.379 (or 37.9%), shows that the model explains for approximately 37.9% of variation observed in

the dependent variable, indicating that the predictors have a meaningful influence on the outcome. The Adjusted R² value of 0.372 adjusts the R² to account for the number of predictors, and the slight decrease from 0.379 to 0.372 suggests that the inclusion of all four predictors is justified, as the model's explanatory power remains relatively stable.

The Estimated Standard Error value is 0.323, measures the normal distance among the detected values and the projected values of the dependent variable. A lesser value shows that the model's projections are closer to the real data

points, and in this case, the value of 0.323 suggests that the model provides reasonably accurate predictions, though there is still some variability unaccounted for. The R^2 Change of 0.379 indicates the amount of variance explained by the inclusion of all four predictors, which is similar to the R^2 , as it signifies the total contribution of the variables. The F Change statistic of 58.038 tests the overall significance of the model, comparing it to a model with no

predictors. The associated Sig. F Change value is 0.000 where $p < 0.001$, shows that the model is statistically significant, which results that the variables have collectively a significant effect on the dependent variable. The DEGREES OF FREEDOM (DF1 = 4 and DF2 = 381) reflect the number of predictors and the sample size, respectively, with the large sample size of 381 observations providing robust support for the model's results.

Table 4 Effects of Financial Inclusion

Model	Unstandardized Coefficients		T	Sig.	Correlations		Collinearity Statistics		
	B	Std. Error			Zero-order	Partial	Part	Toler.	VIF
1 (Constant)	-0.224	0.043	-5.222	0.000					
INCOME	0.033	0.010	3.429	0.001	0.224	0.173	0.138	0.971	1.030
EMP	0.009	0.011	0.805	0.421	0.116	0.041	0.033	0.979	1.021
EDU	0.059	0.011	5.558	0.000	0.321	0.274	0.224	0.960	1.042
FS_ACCESS	0.398	0.034	11.670	0.000	0.554	0.513	0.471	0.937	1.068

a. Dependent Variable: FI Rural Urban

Descriptive Statistics and Correlations

Table 5: Descriptive Statistics and Correlations

		FI Rural Urban N		Income	EMP	EDU	FS Access
Pearson Correlation	FI_Rural_Urban	386	1.000	0.224	0.116	0.321	0.554
	Income	386	0.224	1.000	0.065	0.009	0.162
	Employment	386	0.116	0.065	1.000	0.104	0.103
	Education	386	0.321	0.009	0.104	1.000	0.179
	FS Access	386	0.554	0.162	0.103	0.179	1.000
Sig. (1-tailed)	FI_Rural_Urban	386	.	0.000	0.011	0.000	0.000
	Income	386	0.000	.	0.103	0.432	0.001
	Employment	386	0.011	0.103	.	0.021	0.022
	Education	386	0.000	0.432	0.021	.	0.000
	FS Access	386	0.000	.001	0.022	.000	.

The derived data of correlation provides insights into the relationships between the variables the Financial Inclusion in rural-urban area (FI_RURAL_URBAN, INCOME), Employment (EMP), Education (EDU), and Financial Services access (FS_ACCESS). FI_RURAL_URBAN shows the strongest positive correlation with FS_ACCESS where $r = 0.554$, $p < 0.001$, indicating a moderately strong relationship, suggesting that access to financial services is a

significant factor influencing the dependent variable. It also has a reasonable positive correlation with EDUCATION, where $r = 0.321$, $p < 0.001$, implying that greater education levels are related with higher values of FI_RURAL_URBAN. The correlation with INCOME is weaker but still significant of $r = 0.224$, $p < 0.001$, showing that the income levels have a modest influence, while the weakest correlation is with EMPLOYMENT, $r = 0.116$, p

= 0.011, suggesting that employment status has a small but statistically significant relationship with FI_RURAL_URBAN.

INCOME has a weak but significant positive correlation with FS_ACCESS of $r = 0.162$, and $p = 0.001$, signifying that the higher income levels are linked with better reach to financial services. However, its correlations with EMP ($r = 0.065$, $p = 0.103$) and EDU ($r = 0.009$, $p = 0.432$) are very weak and not statistically significant, indicating that income is largely independent of employment status and education in this dataset. EMP shows weak but significant positive correlations with EDU ($r = 0.104$, $p = 0.021$) and FS_ACCESS ($r = 0.103$, $p = 0.022$), suggesting that employment status is slightly associated with higher education levels and better access to financial services. Its correlation with INCOME is negligible and not significant ($r = 0.065$, $p = 0.103$), indicating that employment status does not strongly influence income levels in this context.

EDUCATION has a positive correlation with FS_ACCESS ($r = 0.179$, $p < 0.001$), indicating that advanced education levels are related with high access to the financial services. Its correlations with INCOME ($r = 0.009$, $p = 0.432$) and EMP ($r = 0.104$, $p = 0.021$) are weak, with only the latter being statistically significant, suggesting that education has a limited direct relationship with income and employment status in this dataset. FS_ACCESS has the strongest

correlation with FI_RURAL_URBAN ($r = 0.554$, $p < 0.001$), supporting its importance as a key variable. It also shows weak but significant positive correlations with INCOME ($r = 0.162$, $p = 0.001$) and EDU ($r = 0.179$, $p < 0.001$), suggesting that access to financial services is slightly influenced by higher income and education levels. Its correlation with EMP is weak but significant ($r = 0.103$, $p = 0.022$), indicating a minor relationship with employment status.

Most of the correlations involving FI_RURAL_URBAN, FS_ACCESS, and EDU are statistically significant ($p < 0.05$), indicating that these relationships are unlikely to be due to random chance. However, the correlations between INCOME and EMP ($p = 0.103$) and INCOME and EDU ($p = 0.432$) are not statistically significant, suggesting that these relationships are weak or nonexistent in this dataset. The sample size of 386 observations is sufficiently large to provide reliable estimates of the correlations, ensuring that the results are robust and generalizable. Overall, the correlation matrix reveals that FS_ACCESS and EDU are the most strongly correlated with FI_RURAL_URBAN, highlighting their importance as predictors, while INCOME and EMP show significant but weaker relationships. The correlations with the independent variables are generally weak, signifying that multicollinearity is not a major concern in this dataset.

Analysis of Variance (ANOVA)

Table 6 Analysis of Variance (ANOVA)

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	24.233	4	6.058	58.038	0.000
	Residual	39.770	381	0.104		
	Total	64.003	385			

a. Dependent Variable: FI_Rural_Urban

b. Independent Variables: (Constant), FS Access, EMP, Income, EDU

ANOVA (*Analysis of Variance*), illustrate the results of the regression analysis, testing the overall significance of the linear regression model by explaining the dependent variable, FI_RURAL_URBAN, using the dependent variables FS_ACCESS, EMP, INCOME, and EDU. The regression model is statistically

significant, as indicating by the F-statistic of value 58.038 and a p-value of 0.000 shows $p < 0.001$. This shows that the variables have collectively a significant effect on FI_RURAL_URBAN, and the regression model is a good fit from the derived data. The total variance in the dependent variable is divided into two components, the

variance explained by the regression model of value 24.233 and the unexplained variance or residual of 39.770. The regression sum of squares is 24.233, which represents the portion of the total variance in the FI_RURAL_URBAN that is accounted for by the independent variables, while the residual sum of squares is 39.770, represents the unexplained variance. The mean square value is derived from, by dividing the sum of squares by their respective degrees of freedom, the value obtained is 6.058 for the regression and value 0.104 is for the residual. The large F-statistic and the small p-value confirm that the liner regression model significantly improves the likelihood of the dependent variable FI_RURAL_URBAN, as compared to a model with no predictors. Overall, the ANOVA results illustrate the assumption that the variables FS_ACCESS, EMP, INCOME, and EDU have collectively a meaningful and statistically significant impact on the dependent variable.

7. Conclusion of the study

This study concludes, The Dynamics of Rural-Urban Financial Inclusion Gap: Case Study of District Swat, pursued to explore and analyze the disparity in the financial inclusion among the rural and urban areas of Swat district. Based on the findings and statistical analysis, the study identified a significant disparity in financial inclusion existed among the rural and urban areas. Urban areas show higher levels of financial inclusion due to better infrastructure, higher literacy rates, and increased access to the banking facilities. Conversely, rural areas face challenges such as limited banking outreach, low financial literacy, and cultural barriers, contributing to their financial segregation. The findings suggest that the financial inclusion significantly impacts the socio-economic development in both rural and urban areas of swat.

The statistical model is used in this research verifies the significance of the relationship amongst the financial inclusion and socio-economic development where $p < 0.001$. While the F-statistic indicates a strong relationship, the R^2 value is 37.9%, suggests that other exempted variables may also influence the dependent variable. This highlights the complex nature of financial inclusion and its impacts.

Key disputes are identified in the rural areas of swat, include poor financial literacy, limited

access to banking services, and inadequate technological infrastructure. These barriers delay the effective integration of rural residents registering to the financial system, spreading the financial inclusion gap.

8. Recommendations

The study results derive, the subsequent recommendations are suggested to address the rural-urban financial inclusion gap and encourage socio-economic development in the Swat district. By ensuring the financial services in the rural area, the primary initiative is to increase the number of bank branches, mobile banking units, and ATMs to enhance accessibility. Introducing branchless banking models can also benefit to bridge the financial gap. By developing the targeted financial learning campaigns to instruct the rural communities on the importance of saving, credit, and insurance. To initiate these programs culturally sensitivity should be address for better result and should be delivered in the local languages for better outreach. By encouraging the embracing, the digital financial services such as mobile wallets and online banking platforms. Investments by the public private partnership, to improve the internet connectivity and mobile network coverages in the rural areas are vital to facilitate this transition.

The officials should implement inclusive financial strategies that prioritize the rural development. Government Subsidies or incentives can be offered to financial institutions to establish operations in the deprived areas. Partnership with local administration, NGOs, and community leaders to address the cultural and social barriers to financial inclusion. These partnerships can raise trust and encouragement to the rural populations to participate in the financial systems. Design financial products and services that satisfy the specific requirements of the rural communities, such as short-term loans for the farmers, micro-insurance schemes, and savings plans suitable to their income cycles.

9. Future Research Directions

This research study provided a valuable insight into the rural-urban financial inclusion gap in Swat, but it also highlights the areas for further exploration of KPK province, to explore additional variables that may influence financial

inclusion, such as gender dynamics, cultural norms, technological impact and economic policies. Conduct longitudinal studies to assess the long-term impacts of financial inclusion initiatives on the socio-economic development. Tackling down the financial inclusion gap among the rural and urban areas in Swat is critical for achieving reasonable socio-economic development. While the substantial challenges persist, the proposed interventions and policy measures have the potential to bridge this gap, ensuring that all members of society have access to financial resources and opportunities. This research features the significance of a collective and complex approach to encourage the financial inclusion in the swat region.

REFERENCES

- Abdulummin, B. A., Etudaiye-Muhtar, O. F., Jimoh, A. T., & Sakariyahu, O. R. (2019). An investigation into the level of financial inclusion in Sub-Saharan Africa. *Scientific Annals of Economics and Business*, 66(1), 41-63.
- Abouhawwash, M., Rosak-Szyrocka, J., & Gupta, S. K. (2024). Aspects of quality management in value creating in the industry 5.0 way. CRC Press.
- Abramova, I., Nediliska, L., Kurovska, N., & Martynyuk, H. (2021). Financial inclusion in the context of sustainable development of rural areas. *Management Theory and Studies for Rural Business and Infrastructure Development*, 43(3), 328-336.
- Afjal, M. (2023). Bridging the financial divide: a bibliometric analysis on the role of digital financial services within FinTech in enhancing financial inclusion and economic development. *Humanit Soc Sci Commun* 10, 645
- Agwu, M. E. (2021). Can technology bridge the gap between rural development and financial inclusions?. *Technology Analysis & Strategic Management*, 33(2), 123-133.
- Alabi, A. W., & Olaoye, F. O. (2022). The effect of technology adoption on financial inclusion: a cross-country panel analysis between China and Nigeria. *European Journal of Business and Management Research*, 7(2), 1-11.
- Belokopytova, T. (2023). *Writing an Effective Business Plan: A Case Study of SaYes* (Master's thesis, National Yang Ming Chiao Tung University).
- Chitimira, H., & Torerai, E. (2021). The nexus between mobile money regulation, innovative technology and the promotion of financial inclusion in Zimbabwe. *Potchefstroom Electronic Law Journal/Potchefstroomse Elektroniese Regsblad*, 24(1).
- Cyril, U. M., Ugwu, P. N., & Adanna, G. O. E. Nexus Between Financial Technology and Financial Inclusion in Nigeria.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2020). The Global Findex Database 2017: Measuring financial inclusion and opportunities to expand access to and use of financial services. *The World Bank Economic Review*, 34(Supplement_1), S2-S8.
- Esquivias, M. A., Sugiharti, L., Jayanti, A. D., Purwono, R., & Sethi, N. (2020). Mobile technologies, financial inclusion and inclusive growth in East Indonesia. *Journal of Telecommunications and the Digital Economy*, 8(2), 123-145.
- Esquivias, M. A., Sugiharti, L., Jayanti, A. D., Purwono, R., & Sethi, N. (2020). Mobile technologies, financial inclusion and inclusive growth in East Indonesia. *Journal of Telecommunications and the Digital Economy*, 8(2), 123-145.
- Faust, C., Dukes, A. J., & Sokol, D. D. (2023). Fintech and Financial Inclusion: A Review of the Empirical Literature. *Southern California Law Review*, 23-16.
- Fauzi, E., Zakiah, A., Syukriyah, Y., & Yuliani, S. (2023). Integrated Learning Model: A Blend of Project-Based Approach and SDLC Concepts for Software Engineering Courses, Evaluated through EUCS. *INTECOMS: Journal of Information Technology and Computer Science*, 6(2), 1179-1187.
- Ghamghami, C. (2024). Dominant employee threat perceptions and AI adoption risks across departments. *Saint Mary's College of California*.

- Goswami, S., Sharma, R. B., & Chouhan, V. (2022). Impact of financial technology (Fintech) on financial inclusion (FI) in Rural India. *Universal Journal of Accounting and Finance*, 10(2), 483-497.
- Hasan, Morshadul, Thi Le, and Ariful Hoque. "How does financial literacy impact on inclusive finance?." *Financial innovation* 7, no. 1 (2021): 40.
- Hassan, A. (2022). *Challenges to Implementing Financial Inclusion in Sub-Rural Areas in Bauchi State* (Master's thesis, American University of Nigeria).
- Hassan, J., Muhammad, N., Sarwar, B., & Zaman, N. U. (2020). Sustainable development through financial inclusion: The use of financial services and barriers in Quetta-Pakistan. *European Online Journal of Natural and Social Sciences*, 9(4), pp-691.
- Hossain, M. I., Mia, M. A., & Dalla Pellegrina, L. (2024). A systematic review of gender diversity and its impact on the performance of Microfinance Institutions. *Future Business Journal*, 10(1), 9.
- Hussain, M., & Mahmood, S. (2019). *Financial inclusion in Pakistan: A comparative study of rural and urban areas*. *Pakistan Journal of Social Sciences*, 39(2), 789-800.
- Ibtasam, S., Razaq, L., Anwar, H. W., Mehmood, H., Shah, K., Webster, J., ... & Anderson, R. (2018, June). Knowledge, access, and decision-making: Women's financial inclusion in Pakistan. In *Proceedings of the 1st ACM SIGCAS Conference on Computing and Sustainable Societies* (pp. 1-12).
- Ishtiyag Nadeem, V., Waheed, K., & Fathima MS, A. (2024). Financial inclusion of Muslim minority in Vellore, Tamil Nadu. *Economic Notes*, 53(1), e12232.
- Kanwal, A., Tayyab, M., & Idrees, S. (2023). Exploring the nexus of financial technologies, financial inclusion, and blockchain in Islamic finance within digital transformation. *Pakistan Journal of Humanities and Social Sciences*, 11(4), 4055-4069.
- Khan, F., Siddiqui, M. A., & Imtiaz, S. (2022). Role of financial literacy in achieving financial inclusion: A review, synthesis and research agenda. *Cogent Business & Management*, 9(1), 2034236.
- Khera, P., Ng, S., Ogawa, S., & Sahay, R. (2022). Measuring digital financial inclusion in emerging market and developing economies: A new index. *Asian Economic Policy Review*, 17(2), 213-230.
- Kouladoun, J. C., Wirajing, M. A. K., & Nchofoung, T. N. (2022). Digital technologies and financial inclusion in Sub-Saharan Africa. *Telecommunications Policy*, 46(9), 102387.
- Kouladoun, J. C., Wirajing, M. A. K., & Nchofoung, T. N. (2022). Digital technologies and financial inclusion in Sub-Saharan Africa. *Telecommunications Policy*, 46(9), 102387.
- Liu, Y., Wan, Q., & Chen, W. (2024). Digital inclusive finance as a catalyst for rural revitalization: An empirical analysis from the county development perspective in Hubei Province. *Journal of the Knowledge Economy*, 15(3), 11548-11580.
- Ma, J., Li, G., Chen, P., & Li, D. (2023). How does digital financial inclusion affect farmers' choice of agricultural mechanisation: evidence from China. *Technology Analysis & Strategic Management*, 1-14.
- Meniago, C. (2025). Digital Financial Inclusion and Economic Growth: The Moderating Role of Institutions in SADC Countries. *International Journal of Financial Studies*, 13(1), 4.
- Mhlanga, D., & Dzingirai, M. (2024). Financial inclusion and sustainable rural development. *Springer Science and Business Media LLC*.
- Mhlanga, D., & Dzingirai, M. (2025). Financial inclusion and sustainable development in Sub-Saharan Africa. *Routledge*.
- Moufakkir, M., & Mohammed, Q. (2021). The nexus between FinTech adoption and financial inclusion. In *Research Anthology on Personal Finance and Improving Financial Literacy* (pp. 175-191). IGI Global.

- Musonda, I., Mwanaumo, E., Onososen, A., & Kalaoane, R. (2024). Development and Infrastructure in Developing Countries: A 10-Year Reflection: Proceedings of the 10th International Conference on Development and Investment in Infrastructure (DII 2024, 24-26 July 2024, Livingstone, Zambia).
- Neelam, K., & Bhattacharya, S. (2022). Financial Technology Solutions for Financial Inclusion: A review and future agenda. *Australasian Accounting, Business and Finance Journal*, 16(5), 170-184.
- Osuma, G. (2025). The impact of financial inclusion on poverty reduction and economic growth in Sub-Saharan Africa: A comparative study of digital financial services. *Social Sciences & Humanities Open*, 11, 101263.
- Ozili, P. K. (2021, October). Financial inclusion research around the world: A review. In *Forum for social economics* (Vol. 50, No. 4, pp. 457-479). Routledge.
- Pakistan Bureau of Statistics. (2017). *Pakistan Social and Living Standards Measurement Survey (PSLM)*.
- Panakaje, N., Rahiman, H. U., Parvin, S. R., Kulal, A., & Siddiq, A. (2023). Socio-economic empowerment in rural India: Do financial inclusion and literacy matters?. *Cogent Social Sciences*, 9(1), 2225829.
- Phalatse, T. (2023). *The Use of Online Products and Services by Smes in Underdeveloped Communities* (Master's thesis, University of Johannesburg (South Africa)).
- Podgorskaya, S. (2021). Modern aspects of the development of financial inclusion in rural areas of the Russian Federation. In *E3S Web of Conferences* (Vol. 285, p. 01013). EDP Sciences.
- Razzaq, A., Qin, S., Zhou, Y., Mahmood, I., & Alnafissa, M. (2024). Determinants of financial inclusion gaps in Pakistan and implications for achieving SDGs. *Scientific Reports*, 14(1), 13667.
- Rolle, L. V. (2024). *Fostering Industry Diversification: The Impact of Small and Medium-Sized Enterprises in The Bahamas* (Doctoral dissertation, National University).
- Sanni, A. M. (2024). Technological driven corporate social responsibilities of telecommunication industry and business communities in Kwara. *Kwara State University (Nigeria)*.
- Simatele, M., & Maciko, L. (2022). Financial inclusion in rural South Africa: A qualitative approach. *Journal of Risk and Financial Management*, 15(9), 376.
- Singh, S. (2022). A study on Financial Inclusion for Rural Development in India with reference to Tourism Sectors. *RESEARCH REVIEW/ International Journal of Multidisciplinary*, 7(2), 33-39.
- Tefera, G. D., & Temeselew, W. M. (2022). The analysis of financial inclusion and its determinants in the rural area of South Wollo Zone, Amhara Region, Ethiopia. *Cogent Economics & Finance*.
- Uneanya, M. N. (2019). *Factors that Affect e-Commerce Adoption in Nigeria* (Doctoral dissertation, Capella University).
- Vyas, V., & Jain, P. (2021). Role of digital economy and technology adoption for financial inclusion in India. *Indian Growth and Development Review*, 14(3), 302-324.
- Vyas, V., & Jain, P. (2021). Role of digital economy and technology adoption for financial inclusion in India. *Indian Growth and Development Review*, 14(3), 302-324.
- Wu, G., & Peng, Q. (2024). Bridging the digital divide: Unraveling the determinants of fintech adoption in rural communities. *SAGE Open*, 14(1), 21582440241227770.
- Zhang, L., & Lin, N. (2020, January). Promoting of Development with the Assistance of Financial Technology. In *2019 3rd International Conference on Education, Economics and Management Research (ICEEMR 2019)* (pp. 227-229). Atlantis Press.
- Zhou, Z., Zhang, Y., & Yan, Z. (2022). Will digital financial inclusion increase Chinese farmers' willingness to adopt agricultural technology?. *Agriculture*, 12(10), 1514.

Абрамова, І., Недільська, Л., Куровська, Н., Ковальчук, О., & Поплавський, П. (2023). Modern state and post-war prospects of financial inclusion in Ukraine considering the eu experience. *Financial and credit activity problems of theory and practice*, 6(53), 318-333.

