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UNEQUAL RESILIENCE: EXPLORING THE DETERMINANTS OF FINANCIAL RESILIENCE IN SOUTH ASIA

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ABSTRACT

The objective of the study is to assess the impact of socioeconomic, regional, demographic, and contextual factors on financial resilience in South Asia. The research utilizes data from the 2021 Global Findex database. For empirical analysis, the sample consists of 8,009 participants from six South Asian countries, excluding Bhutan and Maldives. The study employs a logistic regression model to examine the relationship between these factors and financial resilience. The baseline regression findings reveal that financial resilience is significantly influenced by gender, education, income, digital access, and place of residence. Males demonstrate a higher likelihood of being financially resilient than females, reflecting enduring gender-based disparities in financial inclusion. Education, especially at the tertiary level, emerges as a strong predictor of resilience, while income shows a clear, monotonic relationship—higher income groups are markedly more resilient. Digital access, particularly the combination of mobile and internet connectivity, significantly enhances financial preparedness, whereas single access point yield limited benefits. Urban residents are more financially resilient than their rural counterparts, likely due to better infrastructure and diversified income opportunities. The findings of the study are crucial for policymakers and financial institutions aiming to enhance financial resilience, thereby improving economic stability and promoting mental well-being in a region marked by significant disparities.

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INTRODUCTION

Financial wellbeing signifies having a solid financial base that enables individuals to handle daily expenses stress-free, offering both stability and the ability to save for future desires and needs, such as retirement and education (Jaggar and Navlakhi, 2021). It involves sound financial planning, effective debt management, and aligning spending with personal values to foster growth. Additionally, financial wellbeing involves freedom from financial worries, which are prevalent among those with insufficient financial shock absorbers or struggling to meet basic needs. Financial stress often intensifies for those with limited income, scant savings, and restricted credit access, leading to heightened monetary concerns, especially among the economically disadvantaged (Hughes, 2021). Real-life conditions heavily influence these financial experiences, affecting overall security and stress levels. Globally, the proportion of adults with bank accounts rose by 50 percent from 2011 to 2021, reaching 76 percent (Demirgüç-Kunt et al., 2022). This increase in account ownership and utilization could lead to benefits such as reduced poverty levels, increased consumption, and more investment in education, health, and economic opportunities. Additionally, development objectives often aim to enhance well-being, which ties into financial resilience—the ability to handle unexpected financial shocks. This concept also encompasses the stress caused by financial issues and the confidence in managing financial resources. Financial inclusion plays a crucial role in bolstering well-being by ensuring people have confidence in their financial futures. The 2021 Global Findex survey explored financial resilience by asking if respondents could afford a significant unexpected expense and how they would finance it.

In a study of financial resilience in developing economies, 55% of adults reported being able to access emergency funds within 30 days without significant difficulty (Demirgüç-Kunt et al., 2022). However, 30% primarily depend on family and friends for emergency financial assistance, with nearly half of these individuals finding it challenging to secure the needed funds. Dependence on personal networks is particularly high in the Middle East and North Africa, reaching 50%. Women and poorer individuals are less likely than men and wealthier individuals to successfully obtain emergency funds and more frequently rely on family and friends. Adults who save formally and use these savings in emergencies are most likely to secure funds when needed.

Recent research emphasizes the multifaceted nature of financial resilience, encompassing financial knowledge, inclusion, literacy, socio-demographic variables, and institutional dynamics. For instance, Hamid et al. (2023) found that financial knowledge and inclusion—measured through product ownership and account access—significantly bolster individual financial resilience in Malaysia. Their study also reveals resilience disparities across socio-demographic groups. Similarly, Tinta et al. (2022) emphasized that marriage, financial literacy, and financial innovations improve individual resilience, while employment can paradoxically increase vulnerability. In the European context, Erdem and Rojahn (2022) assessed COVID-19's impact on financial resilience in France,

Germany, Italy, and Spain. Using multiple classification methods on data from 4,781 individuals, they found that financial literacy, though mid-ranked in impact, remains a modifiable and essential determinant. They advocate for financial education and regulatory interventions to build resilience.

Voznyak et al. (2023) highlighted the macro-level significance of financial resilience by analyzing Ukrainian regions from 2015–2021. Through clustering and variance analysis, they identified that higher resilience correlates with economic development and effective resource management, particularly under macroeconomic shocks. Focusing on the gig economy, Daud et al. (2024) surveyed 452 Malaysian gig workers and found low financial resilience, with literacy, age, and income as significant predictors. Sakyi-Nyarko et al. (2022), using a difference-in-differences approach, demonstrated that financial inclusion improves household resilience in Ghana. Savings and formal accounts had stronger effects than mobile money, though mobile remittances supported rural women notably. Collectively, these studies reinforce that financial resilience is not only a personal capability but also a systemic and policy-driven outcome that requires multi-level strategies across education, inclusion, and institutional strengthening.

Despite extensive global research on financial inclusion and financial stress, studies specifically focusing on financial well-being—particularly financial resilience—remain limited. Previous investigations conducted by Aizenman and Pasricha (2012), Park and Mercado (2014), Klapper and Lusardi (2020), Shair et al. (2024a, 2024b), and Salignac et al. (2022). These studies often overlook the comprehensive determinants of financial resilience. This study, however, leverages the latest Global Findex database to assess resilience levels, offering deeper insights and a more holistic understanding of financial well-being. It is the first academic attempt to quantify financial resilience using this dataset. Prior to this, financial resilience was only addressed in descriptive reports based on the Global Findex database, without formal empirical modeling in the academic literature. The current study aims to enhance understanding of South Asia's unique financial landscape. This study comprehensively examines financial resilience by introducing novel covariates tailored to South Asia. This regional focus is chosen due to the lesser heterogeneity among economies and derive robust insights from a substantial sample size.

The objective of this study is to assess the impact of socioeconomic, regional, demographic, and contextual factors on financial resilience in South Asia, with a particular focus on variations across rural-urban and gender-based subgroups. The study holds significance as it provides a comprehensive and data-driven analysis of how these multidimensional attributes influence a critical aspect of financial well-being—an individual's ability to withstand economic shocks. Its findings offer valuable insights for policymakers, development practitioners, and financial institutions seeking to strengthen financial resilience. By identifying key drivers such as education, income, digital inclusion, and gender disparities, the study contributes to designing targeted interventions that not only enhance economic stability but also support broader goals of poverty reduction, financial inclusion, and mental well-being in a region marked by persistent inequality.

METHODOLOGY

The present research utilizes data from the Global Findex database 2021. This dataset is hosted on the World Bank's website and can be accessed through an online request. The survey conducted in 2021 encompasses approximately 128,000 respondents from 123 countries. For the purpose of this study, the dataset includes 8,009 participants from six South Asian countries, excluding Bhutan and Maldives.

To examine the effects of socio-economic, regional, demographic, and contextual variables on financial resilience within selected South Asian nations, we employ a Logistic regression model (Greene, 2003; Gujarati, 2009), operationalized through the following equations:

$$Financial\_resilience_i = \alpha_0 + \alpha_1 gender_i + \alpha_2 age_i + \alpha_3 income_i + \alpha_4 education_i + \alpha_5 employment_i + \alpha_6 area_i + \alpha_7 country_i + \alpha_8 digital\_resources_i + \alpha_9 account_i + \varepsilon_i \quad (1)$$

Where $i = 1, 2, \ldots, nth$ individuals, and $Financial\_resilience_i$ is the outcome variables indicating the financial resilience level of individuals. The description of the dependent and independent variables used in the study is presented in Table 1.

Table 1. Definition of variables.

Variable	Description
Dependent variable	
Financial resilience	A binary variable coded 1 if individual is financially resilient, 0 otherwise. In the survey individuals were asked to respond the difficulty level in arranging an amount equivalent to 5% of GNI per capita in local currency units within the next 30 days. We coded 1 if responded very difficult, 0 otherwise.
Independent variables	
Female	A binary variable coded 1 if respondent is female, 0 otherwise. Male is a base category.
Age	A continuous variable in years old.
Income	An Ordinal categorical variable follows lower income, lower middle income, middle income, upper middle income, and upper income group. Lower income group is a base category.
Education	An ordinal categorical variable consist of primary or no education, secondary, and tertiary education. Primary or no education is a base category.
Employed	A binary dummy variable coded 1 if respondent is employed, zero otherwise. Not employed is a base category.
Urban	A binary dummy variable coded 1, if a person belongs to urban area, zero otherwise. Rural is a base category.
Country	A multinomial categorical variable that consist of six countries, such as Afghanistan, Bangladesh, India, Pakistan, Sri Lanka, and Nepal. Afghanistan is a base category.
Digital resources	A multinomial categorical variable which consist of individual's ownership to digital resources like mobile, mobile and internet, and no access to mobile. No access to mobile phone is a base category.
Bank account	A multinomial categorical variable that consist of bank account, mobile money account, both bank and mobile money account, and none of them. Individuals who have no bank account or mobile money account is base category.

RESULTS AND DISCUSSION

Descriptive analysis

The bar chart displayed in Figure 1 shows the distribution of financial resilience of individuals across various South Asian countries. The data is divided into two categories: 'Resilient Yes' and 'Resilient No,' representing individuals who are and are not financially resilient, respectively. For the whole sample, approximately 47.7% of individuals are categorized as financially resilient, while 52.3% are not. The country-wise breakdown reveals varied levels of financial resilience: Afghanistan shows nearly equal distribution between resilient and non-resilient individuals; Bangladesh, India, and Pakistan have higher percentages of non-resilient individuals (over 54%); Nepal and Sri Lanka, on the other hand, show a relatively higher resilience, with 60.66% and 67.57% of individuals categorized as resilient, respectively.

Table 2 provides detailed descriptive statistics for the data. Financially resilient, each category is divided into binary responses ('Yes' and 'No'), reflecting the presence or absence of each condition. The resilience variable shows that 47.7% of the sample reports being resilient, as indicated by a mean of 0.477, while 52.3% are not, reflected by a mean of 0.523 for the negative response. The data is evenly distributed between female and male respondents, each accounting for half of the sample, as indicated by the mean of 0.5 for both. This suggests an intentional balance in gender representation within the sample. The age of participants varies from 15 to 93 years, with an average (mean) age of approximately 35.66 years. The standard deviation of 14.39 suggests there is a wide range of ages among the respondents, reflecting diverse age representation. Participants are almost evenly split between rural and urban areas, with slightly more residing in rural areas (53.4%) compared to urban areas (46.6%). This indicates that the sample includes a broad geographic representation, which can be important for analyzing regional differences in the study. Regarding education levels, there is a significant representation of individuals with primary education, accounting for about 50.4% of the sample. Those with secondary education make up 42.9% of the sample, while a relatively small proportion, 6.8%, has tertiary education. This disparity highlights the varying educational attainment levels among the participants, which could influence other socioeconomic factors studied in the population.

The income variable is segmented into quintiles, showing the proportion of the sample falling into each income bracket. The lowest income quintile (Poorest 20%) is 17.1% of the sample, with a standard deviation of 0.377. Similarly, 17.3% belong to the second-lowest income bracket. The middle income bracket includes 19.4% of the sample. Fourth 20%, this bracket comprises 21.2% of the participants. The top income quintile includes 25% of the sample, showing a slight income disparity within the population. 55.5% of the sample is employed, indicating active engagement in the workforce. Conversely, 44.5% are not part of the workforce, which could include retirees, homemakers, students, or the unemployed. Access to digital resources is divided into three categories. None: 23.6% of the population has no access to digital resources. Mobile: 41.3% have access to mobile phones. Mobile & internet: 35.1% of the sample has access to both mobile phones and internet services.

The data reveals significant insights into financial inclusion. A notable 40.3% of the sample do not have any type of financial account, which points to a substantial segment of the population potentially lacking access to formal financial services. About 49% of the sample possess a bank account, indicating a moderate level of penetration of traditional banking services. Only a small proportion, 2.7%, have a mobile financial account, suggesting that mobile banking services are not widely adopted among the sampled population. Even fewer, 8%, utilize both mobile and internet banking solutions, highlighting the gradual uptake of more sophisticated digital financial tools. The sample is distributed across six countries. Afghanistan, Bangladesh, Nepal, Pakistan, and Sri Lanka each represent 12.5% of the sample, suggesting a balanced distribution across these countries. India stands out with a larger share of 37.5%, likely reflecting its larger population size relative to the other countries included in the study.

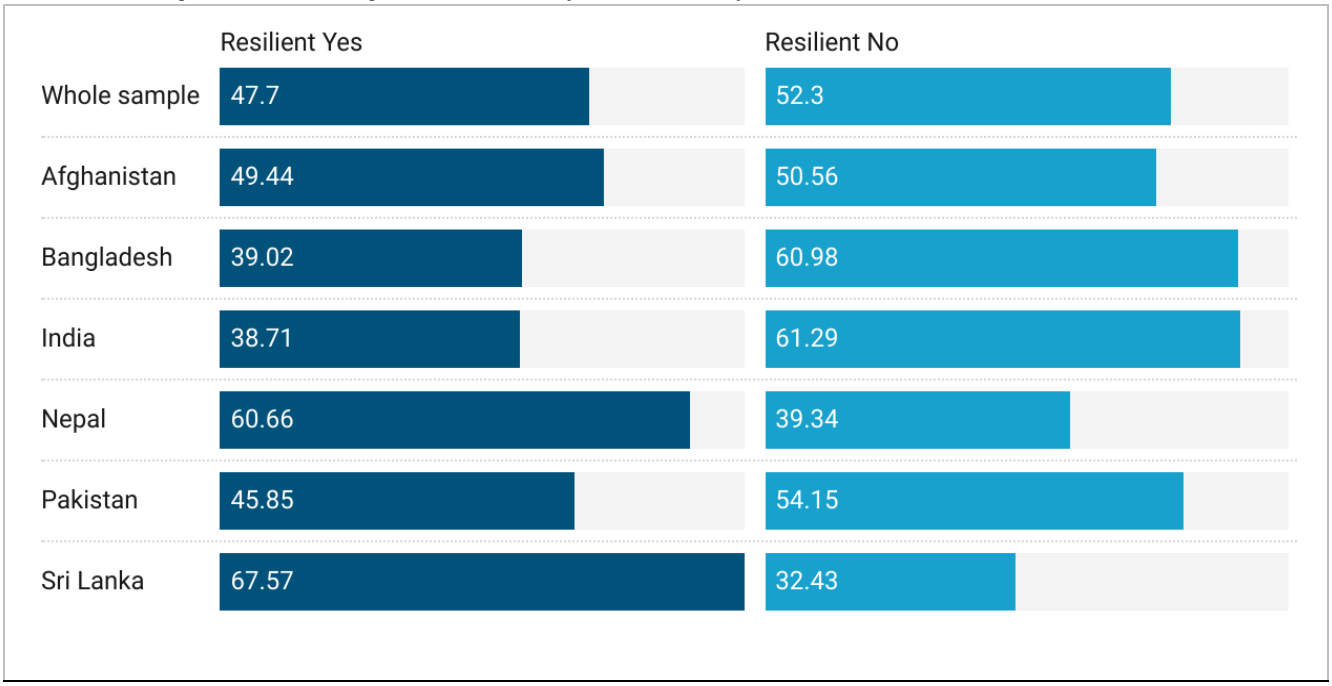

Figure 1. Distribution of financial resilience status of individuals.

Table 2. Descriptive statistics of whole sample.

Variable	Obs	Mean	Std. Dev.	Min	Max
Resilient					
No	6805	0.523	0.5	0	1
Yes	6805	0.477	0.5	0	1
Worrying old age					
No	6306	0.343	0.475	0	1
Yes	6306	0.657	0.475	0	1
Worrying medical					
No	6799	0.275	0.446	0	1
Yes	6799	0.725	0.446	0	1
Worrying bills					
No	6390	0.356	0.479	0	1
Yes	6390	0.644	0.479	0	1
Gender					
Female	8009	0.5	0.5	0	1
Male	8009	0.5	0.5	0	1
Age	8008	35.657	14.392	15	93
Area					
Rural	7004	0.534	0.499	0	1
Urban	7004	0.466	0.499	0	1
Education					
Primary	7995	0.504	0.5	0	1
Secondary	7995	0.429	0.495	0	1
Tertiary	7995	0.068	0.251	0	1
Income					
Poorest 20%	8009	0.171	0.377	0	1
Second 20%	8009	0.173	0.379	0	1
Middle 20%	8009	0.194	0.395	0	1
Fourth 20%	8009	0.212	0.409	0	1
Richest 20%	8009	0.25	0.433	0	1
Employment					
In the workforce	8009	0.555	0.497	0	1
Out of the workforce	8009	0.445	0.497	0	1
Digital resources					
None	8009	0.236	0.425	0	1
Mobile	8009	0.413	0.492	0	1
mobile & internet	8009	0.351	0.477	0	1
Accounts					
None	8009	0.403	0.491	0	1
Bank	8009	0.49	0.5	0	1
Mobile	8009	0.027	0.162	0	1
Both mobile and internet	8009	0.08	0.271	0	1
Country					
Afghanistan	8009	0.125	0.331	0	1
Bangladesh	8009	0.125	0.331	0	1
India	8009	0.375	0.484	0	1
Nepal	8009	0.125	0.331	0	1
Pakistan	8009	0.125	0.331	0	1
Sri Lanka	8009	0.125	0.331	0	1

In the study, most of the variables are categorical in nature, except age. We presented cross tab of financial resilience with covariates in Table 3. Cross-tabulation of financial resilience among a sampled population, differentiated by gender and education level. Of the females surveyed, 1,921 (58.8%) are not financially resilient, while 1,346 (41.2%) are. This indicates a greater proportion of females experiencing financial vulnerability compared to males. In contrast, males show higher financial resilience, with 1,900 (53.7%) reporting resilience and 1,638 (46.3%) reporting a lack of it. Males appear to be slightly more financially resilient than females.

Those with only primary education show the lowest levels of financial resilience; 2,070 (63.87%) are not resilient, and 1,171 (36.13%) are resilient. This suggests that a lower educational level may correlate with reduced financial resilience. Participants with secondary education display better financial resilience, with 1,703 (55.87%) being resilient and 1,345 (44.13%) not resilient. This improvement indicates that higher education levels are associated with increased financial stability. The group with tertiary education exhibits the highest financial resilience; 369 individuals (72.5%) are resilient compared to 140 (27.5%) who are not. This reinforces the trend that higher education correlates strongly with greater financial resilience.

Within the workforce, the data indicates a close divide between those who are financially resilient (51.42%) and those who are not (48.58%), suggesting that employment alone may not guarantee financial stability. On the other hand, those out of the workforce exhibit less financial resilience, with 57.41% not resilient, pointing towards the financial vulnerabilities of retirees, homemakers, and others not engaged in traditional employment. Geographically, rural areas show a higher percentage of non-resilience (59.04%) compared to urban areas (50.86%), indicating that rural residents may face greater financial challenges. In contrast, urban areas, likely benefiting from more robust economic infrastructures, show a more balanced resilience distribution, with 49.14% demonstrating financial resilience.

Table 3. Cross-tabulation of financial resilience with covariates.

Covariates	Resilient		Covariates	Resilient		Covariates	Resilient	
	No	Yes		No	Yes		No	Yes
Gender			Income:			Accounts:		
Female	1921	1346	Poorest 20%	781	277	none	1485	1101
	58.80	41.20		73.82	26.18		57.42	42.58
Male	1638	1900	Second 20%	763	371	bank	1767	1651
	46.30	53.70		67.28	32.72		51.70	48.30
Education			Middle 20%	758	531	mobile	108	88
Primary	2070	1171		58.81	41.19		55.10	44.90
	63.87	36.13	Fourth 20%	719	772	both	199	406
Secondary	1345	1703		48.22	51.78		32.89	67.11
	44.13	55.87	Richest 20%	538	1295	Country:		
Tertiary	140	369		29.35	70.65	Afghanistan	449	439
	27.50	72.50	Digital resources:				50.56	49.44
Labour participation			None	1015	433	Bangladesh	525	336
In workforce	1912	2024		70.10	29.90		60.98	39.02
	48.58	51.42	mobile	1639	1115	India	1531	967
Out of workforce	1647	1222		59.51	40.49		61.29	38.71
	57.41	42.59	mobile & internet	905	1698	Nepal	369	569
Area				34.77	65.23		39.34	60.66
Rural	1885	1308				Pakistan	398	337
	59.04	40.96					54.15	45.85
Urban	1387	1340				Sri Lanka	287	598
	50.86	49.14					32.43	67.57

The data on income shows a clear trend: as income increases, financial resilience also tends to increase. For instance, the poorest 20% of the sample has a significantly lower proportion of resilient individuals (26.18%) compared to the richest 20%, where 70.65% are resilient.

This pattern is consistent across all income quintiles, with each subsequent higher income group showing a greater percentage of resilience. Regarding digital resources, the table illustrates that individuals with access to more advanced digital tools have higher financial resilience. Those with no digital resources show the least resilience (29.90%), whereas individuals with both mobile and internet access display considerably higher resilience (65.23%). This suggests that access to digital technology is strongly correlated with financial security, highlighting the importance of technological connectivity in achieving financial stability.

For accounts, the data reveals that individuals without any financial accounts show a resilience rate of 42.58%, while those with bank accounts have a slightly higher resilience at 48.30%. Mobile account holders exhibit a resilience of 44.90%, and notably, individuals who have both mobile and bank accounts demonstrate the highest resilience at 67.11%. This suggests a correlation between more diversified financial tools and higher financial resilience. Regarding country-specific resilience, the distribution varies: Afghanistan and Sri Lanka show almost equal resilience and non-resilience rates, with Afghanistan at 49.44% resilient and Sri Lanka slightly higher at 67.57%. In contrast, Bangladesh and India show less than half of their populations as resilient, with 39.02% and 38.71% respectively. Nepal and Pakistan have a higher percentage of financially resilient individuals, at 60.66% and 54.15% respectively. This data indicates significant variations in financial resilience across these countries, which may reflect differing economic conditions, access to financial services, or regulatory environments that impact how individuals manage financial challenges.

Figure 2 provides a visual cross-tabulation of financial resilience with various covariates such as gender, education, labor participation, area, income, digital resources, types of accounts, and country. Male exhibit slightly higher financial resilience (46%) compared to female (41%). There is a clear trend of increasing financial resilience with higher educational attainment. Individuals with tertiary education demonstrate the highest resilience (28%), followed by those with secondary (44%) and primary education (36%). Those in the workforce show a resilience rate of 49%, compared to 43% for those out of the workforce. Urban residents (49%) are marginally more resilient than rural residents (41%). Financial resilience increases with income levels. The richest 20% of the population shows a resilience rate of 29%, a stark contrast to the 26% seen in the poorest 20%. Access to digital resources correlates with higher financial resilience. Individuals with both mobile and internet access have a resilience rate of 35%, compared to 30% for those with no digital resources. Similar to digital resources, having both bank and mobile accounts leads to higher resilience (33%), compared to 43% for those with no accounts. Financial resilience varies by country, with Nepal and Pakistan showing relatively higher rates (39% each) compared to Afghanistan, Bangladesh, and India (all at 39%). Sri Lanka displays a notably higher resilience rate at 32%.

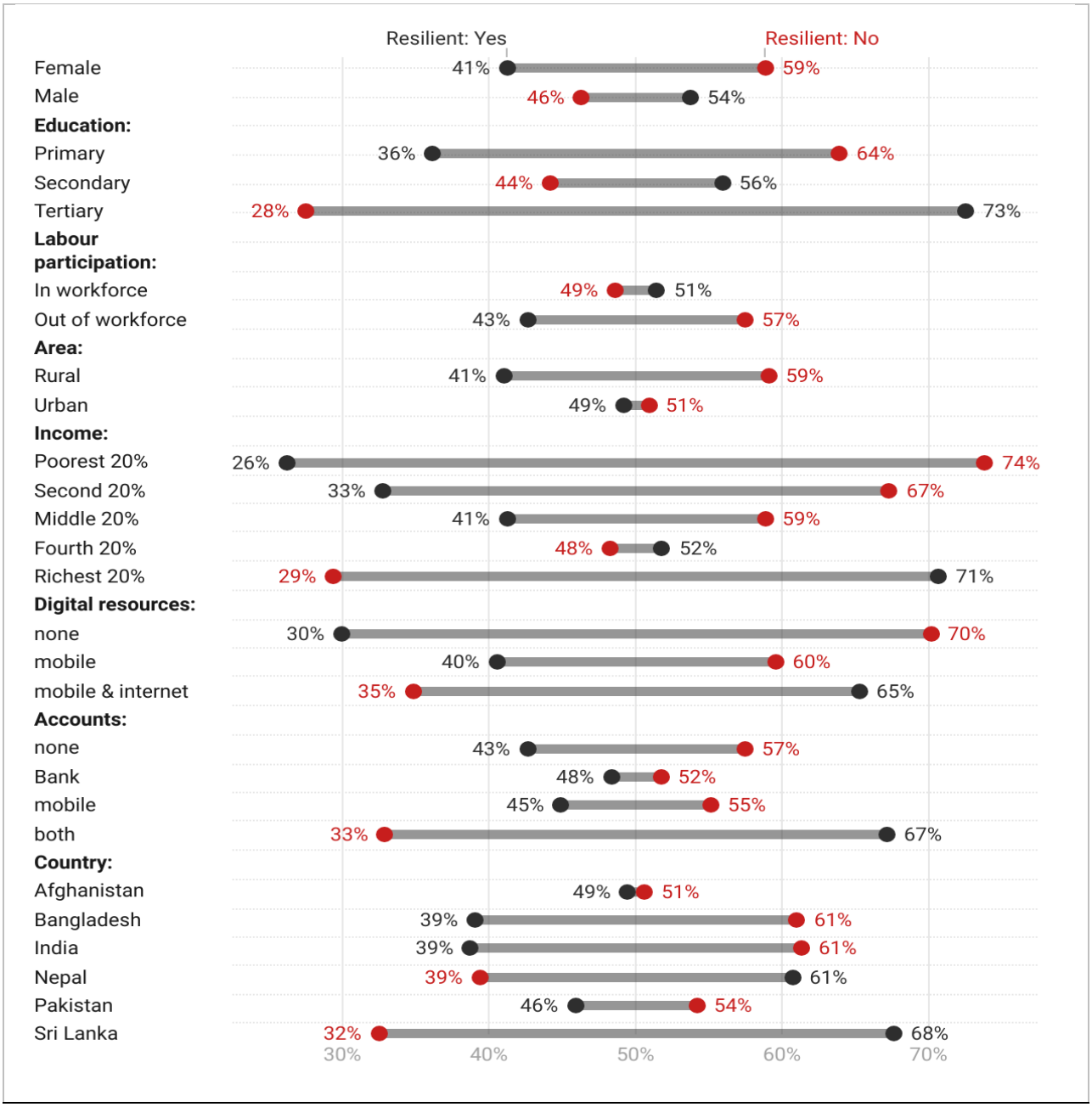

Figure 2. Cross-tabulation of financial resilience with covariates.

Baseline Regression Model

The research investigates an individual's financial resilience, defining it as a binary outcome where 1 indicates financial resilience and 0 indicates lack thereof. This categorization was based on survey responses regarding the difficulty level of arranging an amount equivalent to 5% of the Gross National Income (GNI) per capita in local currency within 30 days, with the outcome coded as 1 for those who found it very difficult, and 0 otherwise. Thus, the model estimates the probability that an individual will report difficulty under these financial conditions. Due to the binary characteristic of our dependent variable, we employed a Logit regression model. The marginal effects derived from the logistic regression model's log odds ratio are shown in Table 4. These marginal effects are interpreted as the probability associated with the covariates for the specific event of the dependent variable.

The variable 'Male' shows a marginal effect of 0.067 with a standard error of 0.014. The z-value of 4.900 and a p-value of 0.000 indicate that this effect is statistically significant. The coefficient suggests that being male increases the probability of being financially resilient by 6.7 percentage points compared to females, who serve as the baseline category. In South Asia, men are generally more financially resilient than women due to higher rates of financial inclusion and account ownership. Women face barriers such as lower income, less formal employment, and limited access to financial services, which restrict their ability to arrange emergency funds (Fletschner and Kenney, 2014). Cultural norms and insufficient policy support also play significant roles in perpetuating these disparities.

The p-value of age is 0.466, which indicates that age does not have a statistically significant effect on financial resilience. The impact of age on financial resilience in South Asia, particularly in terms of arranging emergency funds within 30 days, is not significant because other factors like financial behavior, access to financial services, and socioeconomic status play more crucial roles. Across different age groups in South Asia, the ability to manage financial shocks and access emergency funds is consistently low, primarily due to limited financial literacy and inclusion rather than age itself

(Lyons et al, 2020). This consistency suggests that improvements in financial education and access to financial services are likely more effective measures for increasing financial resilience than strategies focused solely on age-related aspects.

The coefficient for urban residents is 0.035 with a standard error of 0.013. This implies that, holding all else constant, being in an urban area increases the probability of being financially resilient by 3.5 percentage points compared to being in a rural area (the base category). This effect is statistically significant at the 1% level (p-value = 0.006), suggesting that urban residents have a higher likelihood of financial resilience, possibly due to better access to financial services or more diverse income opportunities. Urban settings often have higher concentrations of banks, ATMs, and digital payment facilities, which facilitate easier and faster transactions and savings options (Ivatury, 2009). Additionally, urban residents generally have higher incomes and more diversified employment opportunities, which can lead to greater financial stability and savings potential (Cracknell, 2004). Meanwhile, rural areas may face challenges like limited physical and technological infrastructure, which can impact residents' ability to quickly access or mobilize financial resources.

Individuals with secondary education have a 7.7 percentage point higher probability of being financially resilient compared to those with only primary education (base category), with a standard error of 0.015. This is significant at the 1% level (p-value = 0.000), indicating that higher educational attainment is associated with improved financial resilience. For individuals with tertiary education, the probability increases by 17.4 percentage points compared to those with primary education, and this effect is also statistically significant at the 1% level (p-value = 0.000). The larger coefficient for tertiary education suggests that advanced education substantially enhances financial resilience, likely due to higher earning potential and better financial literacy. For urban residents, it ranges from 1.0% to 6.1%, for secondary educated individuals from 4.9% to 10.6%, and for those with tertiary education from 12.1% to 22.7%. These intervals confirm the significance of the results, as none include zero, reinforcing the impact of these covariates on financial resilience.

Individuals with higher education in South Asia are more financially resilient in terms of arranging emergency funds within 30 days than those with lower education due to several factors. Higher education often correlates with better-paying jobs and greater financial literacy, which enable more effective money management and savings (Nawanao and Lopena, 2024). Educated individuals are also more likely to access and use financial services effectively, such as banking and credit facilities, enhancing their ability to mobilize resources swiftly in emergencies (Pomeroy et al., 2020).

The marginal effects increase consistently as income levels rise. For the second poorest 20%, the probability of being financially resilient increases by 6.2 percentage points compared to the poorest 20% (base category), with this effect statistically significant at the 1% level (p-value = 0.003). This trend intensifies across higher income brackets, with the middle 20% seeing an increase of 13.0 percentage points, the fourth 20% by 19.9 percentage points, and the richest 20% by 33.3 percentage points in their probability of being financially resilient, all highly significant statistically. The increasing marginal effects underscore the strong correlation between higher income levels and greater financial resilience, suggesting that more affluent individuals find it significantly easier to handle unexpected financial requirements. For income, the confidence intervals do not include zero, reinforcing the significance of these findings. For example, the interval for the richest 20% ranges from 29.4% to 37.3%, confirming a strong positive impact of higher income on financial resilience.

Individuals from upper-income groups in South Asia are more financially resilient in terms of arranging emergency funds within 30 days than those from lower-income groups, primarily because they typically have higher disposable incomes and savings. This financial buffer allows them to better absorb and recover from economic shocks. Additionally, higher income often provides better access to financial services and products, such as credit lines and insurance, which can be crucial in managing emergencies (Bui et al., 2017).

The marginal effect for those out of the workforce is an increase of only 1.1 percentage points compared to those in the workforce (base category), and this is not statistically significant (p-value = 0.395). This indicates that being out of the workforce does not significantly alter the probability of experiencing financial difficulty compared to being employed, which might reflect pensions, savings, or social security measures supporting those not working.

Individuals with access to mobile digital resources have a 3.8% higher probability of being financially resilient compared to those with no digital resources (base category). This effect is statistically significant (p-value = 0.018), suggesting that even basic mobile access can enhance financial resilience. The effect is more pronounced for those with access to both mobile and internet, where the probability of being financially resilient increases by 12.9%. This is highly significant (p-value = 0.000), indicating that comprehensive digital connectivity significantly boosts financial resilience, likely due to easier access to financial services and information. The confidence intervals provide additional insights into the reliability of these estimates. For mobile and internet resources, the interval ranges from 9.0% to 16.9%, supporting the strong impact suggested by the p-value.

Individuals in South Asia who have access to digital tools like mobile phones and the internet are more financially resilient in arranging emergency funds within 30 days compared to those who are digitally excluded. Digital inclusion facilitates easier access to online banking services, mobile money solutions, and financial management apps, which enhance an individual's ability to quickly mobilize resources (Siano et al., 2020; Shair et al., 2022, 2023). Additionally, digitally included individuals are often better informed about financial products and can execute transactions instantaneously, further aiding in their financial resilience (Pazarbasioglu et al., 2020).

Having a bank account alone does not significantly affect financial resilience, with a marginal effect of 0.8% and a non-significant p-value (0.623). Access to a mobile financial account shows a slight increase in resilience by 4.5%, but this is not statistically significant (p-value = 0.207), indicating that mobile financial services alone might not be sufficient to impact resilience. Combining both bank and mobile accounts leads to a significant increase in financial resilience, with a 7.4% higher probability compared to having no accounts. The effect is statistically significant (p-value = 0.004), emphasizing that integrated financial services can significantly enhance an individual's financial stability. The confidence interval, for those with both bank and mobile accounts, the interval ranges from 2.4% to 12.3%, confirming the significant positive effect.

These findings underscore the importance of digital and financial inclusion in enhancing financial resilience. While basic mobile access provides some benefits, the combination of comprehensive digital access and integrated financial services substantially increases the likelihood of financial resilience, indicating that

policies aimed at expanding both digital and financial access could be effective in improving economic stability among populations.

Individuals in South Asia who have access to digital tools like mobile phones and the internet are more financially resilient in arranging emergency funds within 30 days compared to those who are digitally excluded. Digital inclusion facilitates easier access to online banking services, mobile money solutions, and financial management apps, which enhance an individual's ability to quickly mobilize resources (Mpofu, 2022). Additionally, digitally included individuals are often better informed about financial products and can execute transactions instantaneously, further aiding in their financial resilience (Lashitew et al., 2019).

The probability of reporting financial resilience is 13.6% lower than in Afghanistan, with a statistically significant z-value of -5.650 and a p-value of 0.000. The 95% confidence interval ranges from -18.3% to -8.9%, underscoring a strong negative differential compared to the base (Afghanistan). Individuals in India are 15.6% less likely to be financially resilient compared to those in Afghanistan, as indicated by a z-value of -7.600 and a p-value of 0.000. The confidence interval from -19.6% to -11.6% further confirms the robustness of this finding. Nepalese respondents have a 7.3% lower probability of being financially resilient than those in Afghanistan. This result is statistically significant (z = 3.150, p = 0.002) with a confidence interval ranging from 2.8% to 11.8%. Pakistani respondents show a 10.6% lower probability of financial resilience than the Afghan base, with significant results (z = -4.550, p = 0.000) and a confidence interval from -15.1% to -6.0%.

These results suggest that, relative to Afghanistan, respondents from Bangladesh, India, Nepal, and Pakistan are all significantly less likely to be financially resilient. The magnitudes of these effects are considerable, especially for Bangladesh and India, indicating substantial country-specific differences in financial resilience. This might reflect varying economic conditions, financial systems, government policies, or social safety nets across these countries.

Individuals from Afghanistan may be more financially resilient in terms of arranging emergency funds within 30 days compared to those from Bangladesh, India, and Pakistan due to several factors. Afghanistan has seen significant efforts to improve financial inclusion, especially through mobile financial services and the development of digital financial infrastructure (Arora, 2020). The widespread use of mobile money services in Afghanistan, facilitated by a robust mobile ecosystem, enhances people's ability to access and mobilize funds quickly in emergencies (Owens, 2013).

Moreover, despite economic challenges, certain financial policies and community-based financial practices might be more prevalent or effective in Afghanistan, potentially contributing to greater financial resilience. The focus on developing and leveraging digital and mobile financial services in Afghanistan has been a critical factor in improving financial inclusion, which in turn supports better emergency fund management.

Table 4. Marginal effect of Logit model on determinants of financial resilience.

Variables	dy/dx	Std. Err.	z	P>z	[95% conf. interval]	
Gender						
Female (base)						
Male	0.067***	0.014	4.900	0.000	0.040	0.094
Age	0.000	0.000	0.730	0.466	-0.001	0.001
Area						
Rural (base)						
Urban	0.035***	0.013	2.760	0.006	0.010	0.061
Education						
Primary (base)						
Secondary	0.077***	0.015	5.300	0.000	0.049	0.106
Tertiary	0.174***	0.027	6.400	0.000	0.121	0.227
Income						
Poorest 20% (base)						
Second 20%	0.062***	0.021	3.020	0.003	0.022	0.103
Middle 20%	0.130***	0.020	6.450	0.000	0.091	0.170
Fourth 20%	0.199***	0.020	10.010	0.000	0.160	0.238
Richest 20%	0.333***	0.020	16.420	0.000	0.294	0.373
Labour participation						
In workforce (base)						
Out of the workforce	0.011	0.013	0.850	0.395	-0.015	0.037
Digital resources						
None (base)						
Mobile	0.038**	0.016	2.360	0.018	0.007	0.070
Mobile & internet	0.129***	0.020	6.390	0.000	0.090	0.169
Accounts						
None (base)						
Bank	0.008	0.015	0.490	0.623	-0.022	0.038
Mobile	0.045	0.036	1.260	0.207	-0.025	0.114
Both bank and mobile account	0.074***	0.025	2.900	0.004	0.024	0.123
Country						
Afghanistan (base)						
Bangladesh	-0.136***	0.024	-5.650	0.000	-0.183	-0.089
India	-0.156***	0.020	-7.600	0.000	-0.196	-0.116
Nepal	0.073***	0.023	3.150	0.002	0.028	0.118
Pakistan	-0.106***	0.023	-4.550	0.000	-0.151	-0.060
Number of observations	5,913					

*** p<0.01, ** p<0.05, * p<0.1

Heterogeneity Analysis

The heterogeneity analysis, presented in Table 5, explores how the marginal effects of covariates on financial resilience differ across sample subgroups using a binary logit model. The analysis highlights consistent and prominent effects of gender on financial resilience across subgroups. In the full sample, being male significantly increases the likelihood of being financially resilient by 6.72 percentage points ($p < 0.01$). This positive effect persists across both rural and urban subsamples—3.38 percentage points ($p < 0.10$) and 9.94 percentage points ($p < 0.01$), respectively—demonstrating a consistent direction of the gender effect across locations, though varying in magnitude. Age does not significantly influence financial resilience in any subgroup. Despite slight variations in direction, the consistently small and statistically insignificant coefficients suggest age plays a negligible role.

Across the full sample, residing in an urban area increases the likelihood of being financially resilient by 3.55 percentage points ($p < 0.01$), relative to rural residents. This effect remains positive and statistically significant across gender subgroups—3.09 percentage points for females ($p < 0.10$) and 4.20 percentage points for males ($p < 0.05$). These consistent positive effects suggest urban settings provide more financial opportunities or resources that support resilience.

Secondary education significantly boosts financial resilience across all subgroups. In the full sample, having secondary education is associated with a 7.71 percentage point increase in resilience ($p < 0.01$). This effect is consistent and significant across rural (8.18 percentage points), urban (6.97 percentage points), female (8.45 percentage points), and male (6.73 percentage points) subgroups. The stable and positive impact highlights the critical role of foundational education in building financial coping capacities. On the other hand, tertiary education exerts a strong and consistent influence on financial resilience in every model. The effect ranges from 12.7 percentage points in rural areas to a high of 21.9 percentage points in urban settings, all significant at the 1% level. The effect remains robust across gender, with females (15.5 percentage points) and males (17.1 percentage points) benefiting significantly. These results underscore higher education as a key enabler of financial preparedness and adaptability.

The analysis reveals a strong, consistent, and monotonic relationship between income level and financial resilience across all subgroups. Compared to the poorest quintile, individuals in the second income quintile show significantly higher financial resilience in the full sample (6.23 percentage points), rural (7.69 percentage points), female (6.53 percentage points), and male (6.19 percentage points) subsamples, though the effect is not significant in urban areas. The middle-income group exhibits a consistently strong and significant effect, with a 13.0–15.8 percentage point increase in resilience, the highest seen among males. This pattern continues in the fourth quintile, where effects range from 15.8 percentage points for females to 22.5 percentage points for males. The richest income group shows the most pronounced and consistent gains, with individuals' 29.5–34.6 percentage points more financially resilient than the poorest, again with the strongest effect among men. These results indicate that upward movement across income brackets substantially enhances financial resilience, suggesting that income progression is a key factor in improving individuals' ability to withstand financial shocks and economic stress.

Being out of the workforce does not significantly affect financial resilience in any subgroup. The coefficients are small and statistically insignificant, suggesting that employment status alone is not a key predictor once other variables are controlled. This could indicate that income level and financial access matter more than formal labour force participation.

Access to mobile-only digital resources modestly improves financial resilience, significantly so in the full sample (3.81 percentage points), rural (8.26 percentage points), and male (5.76 percentage points) subgroups, but remains insignificant in urban and female samples. In contrast, access to both mobile and internet services shows a strong, consistent, and significant positive effect across all subgroups, especially in rural (17.5 percentage points) and male (15.4 percentage points) groups. These findings emphasize the vital role of combined digital access in boosting financial resilience, particularly in underserved areas. Regarding financial accounts, having a mobile or bank account alone does not significantly improve financial resilience in most models. However, individuals with both bank and mobile accounts demonstrate a robust and significant increase in financial resilience. In the full sample, this group is 7.37 percentage points more likely to be financially resilient ($p < 0.01$), with consistent positive effects across rural (6.18 percentage points), urban (8.34 percentage points), and male (6.94 percentage points) subgroups. Though the effect among females is not statistically significant, the direction remains positive. These findings affirm the importance of multi-channel financial access in fostering resilience, especially among men and urban populations.

The analysis reveals consistent country-level disparities in financial resilience relative to Afghanistan. Individuals in Bangladesh, India, and Pakistan are significantly less financially resilient across all subgroups, with the strongest negative effects observed in India and among Bangladeshi women. In contrast, Nepali respondents show significantly higher resilience, especially among females. These findings highlight the influence of national contexts—such as financial inclusion, social support systems, and gender equity—on individual financial resilience, emphasizing the need for country-specific policy interventions to reduce vulnerability.

Table 5. Heterogeneity analysis – marginal effect of Logit model on determinants of financial resilience.

Variables	Whole sample	Rural sample	Urban sample	Female sample	Male sample
Gender:					
Male	0.0672***	0.0338*	0.0994***		
	(0.0137)	(0.0181)	(0.0200)		
Age	0.000334	0.000610	0.000312	-0.000322	0.000880
	(0.000458)	(0.000624)	(0.000677)	(0.000687)	(0.000624)
Area:					
Rural (base)					
Urban	0.0355***			0.0309*	0.0420**
	(0.0128)			(0.0186)	(0.0175)
Education:					
Primary (base)					
Secondary	0.0771***	0.0818***	0.0697***	0.0845***	0.0673***
	(0.0145)	(0.0191)	(0.0202)	(0.0204)	(0.0190)

Tertiary	0.174***	0.127***	0.219***	0.155***	0.171***
	(0.0272)	(0.0349)	(0.0391)	(0.0427)	(0.0330)
Income:					
Poorest 20% (base)					
Second 20%	0.0623***	0.0769***	0.0379	0.0653**	0.0619**
	(0.0206)	(0.0264)	(0.0364)	(0.0294)	(0.0312)
Middle 20%	0.130***	0.133***	0.114***	0.0976***	0.158***
	(0.0202)	(0.0253)	(0.0339)	(0.0286)	(0.0287)
Fourth 20%	0.199***	0.173***	0.197***	0.158***	0.225***
	(0.0199)	(0.0250)	(0.0316)	(0.0275)	(0.0275)
Richest 20%	0.333***	0.323***	0.295***	0.282***	0.346***
	(0.0203)	(0.0251)	(0.0301)	(0.0271)	(0.0266)
Labour participation:					
In workforce (base)					
Out of the workforce	0.0113	0.000357	0.0271	0.0255	0.00139
	(0.0133)	(0.0181)	(0.0198)	(0.0194)	(0.0192)
Digital resources:					
None (base)					
Mobile	0.0381**	0.0826***	-0.0146	0.0303	0.0576**
	(0.0161)	(0.0209)	(0.0242)	(0.0199)	(0.0267)
Mobile & internet	0.129***	0.175***	0.0699**	0.108***	0.154***
	(0.0203)	(0.0261)	(0.0277)	(0.0266)	(0.0294)
Accounts:					
None (base)					
Bank	0.00753	-0.00109	0.0235	-0.0162	0.0253
	(0.0153)	(0.0208)	(0.0224)	(0.0218)	(0.0215)
Mobile	0.0448	0.0704	0.0358	0.0751	0.0174
	(0.0355)	(0.0579)	(0.0447)	(0.0528)	(0.0467)
Both bank and mobile account	0.0737***	0.0618*	0.0834**	0.0704	0.0694**
	(0.0254)	(0.0362)	(0.0341)	(0.0443)	(0.0312)
Country:					
Afghanistan (base)					
Bangladesh	-0.136***	-0.116***	-0.118***	-0.171***	-0.0772**
	(0.0240)	(0.0385)	(0.0330)	(0.0329)	(0.0346)
India	-0.156***	-0.180***	-0.114***	-0.138***	-0.153***
	(0.0205)	(0.0258)	(0.0320)	(0.0299)	(0.0276)
Nepal	0.0727***	0.0458*	0.0925**	0.100***	0.0544*
	(0.0230)	(0.0271)	(0.0414)	(0.0326)	(0.0324)
Pakistan	-0.106***	-0.0858***	-0.0944***	-0.104***	-0.0993***
Observations	5913	3186	2727	2846	3067

*** p<0.01, ** p<0.05, * p<0.1.

CONCLUSIONS

This study aimed to assess the impact of socioeconomic, regional, demographic, and contextual factors on financial resilience in South Asia. The baseline regression findings reveal that financial resilience is significantly influenced by gender, education, income, digital access, and place of residence. Males demonstrate a higher likelihood of being financially resilient than females, reflecting enduring gender-based disparities in financial inclusion. Education, especially at the tertiary level, emerges as a strong predictor of resilience, while income shows a clear, monotonic relationship—higher income groups are markedly more resilient. Digital access, particularly the combination of mobile and internet connectivity, significantly enhances financial preparedness, whereas single access point's yield limited benefits. Urban residents are more financially resilient than their rural counterparts, likely due to better infrastructure and diversified income opportunities. These results emphasize the critical role of inclusive policies that promote education, digital connectivity, and financial access in enhancing individual and household financial resilience across the region.

The heterogeneity analysis reinforces the consistency of core predictors across subgroups while uncovering key variations in their effects. Gender remains a prominent determinant, with men more financially resilient across both rural and urban areas, particularly in urban settings. Education continues to show strong and consistent effects, as secondary and tertiary attainment significantly improve resilience across gender and regional divides. Income progression strongly correlates with higher financial resilience, especially among males, underscoring the need to address income inequality. Digital access proves especially impactful in rural and male subgroups, with combined mobile and internet usage yielding the strongest effects across all samples. Dual ownership of bank and mobile accounts also consistently enhances resilience, particularly in urban and male populations. Additionally, country-level disparities reveal that respondents from Bangladesh, India, and Pakistan face significantly lower resilience compared to Afghanistan, while Nepal shows a relative advantage. These findings highlight the need for context-specific financial inclusion strategies and regionally targeted interventions to strengthen resilience equitably.

Based on the study's findings, targeted policy interventions should focus on enhancing financial resilience through inclusive education, income growth, and digital-financial integration. Expanding access to secondary and tertiary education can strengthen financial preparedness, particularly for women and rural populations. Efforts to improve digital connectivity—especially combined access to mobile and internet—should be prioritized in underserved areas. Promoting dual financial access (bank and mobile accounts) and addressing gender disparities in financial inclusion are essential. Country-specific strategies, particularly in Bangladesh, India, and Pakistan, should strengthen financial infrastructure and social protection systems to close

resilience gaps. Strengthening these areas will enable individuals to better withstand economic shocks and improve financial stability across South Asia.

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