



## Does financial inclusion gender gap persist in the digital world?

Afroza Sultana

Department of Business Administration, Premier University, Chattogram-4000, Bangladesh.

[afrozapuc2018@gmail.com](mailto:afrozapuc2018@gmail.com)

### Article History

**Received:** 10 June 2025

**Revised:** 17 July 2025

**Accepted:** 21 June 2025

**Published:** 25 July 2025

### Keywords

Digitalization

Digital Literacy

Financial inclusion

Gender gap

Low-and lower-middle-income countries.

### ABSTRACT

This study examines whether digitalization effectively reduces the gender gap in financial inclusion across 37 low- and lower-middle-income countries between 2011 and 2021. Using Ordinary Least Squares (OLS) panel regression and a control function approach to check for endogeneity, the study explores the impact of digital variables, such as internet usage, digital payments, and a technology and innovation index, on the gender gap in account ownership, saving, and borrowing from formal financial institutions. Findings reveal that digitalization has a mixed impact. Internet usage significantly reduces the gender gap in saving, suggesting that increased connectivity can improve women's ability to save. However, digital payments are associated with a wider saving gap, possibly reflecting unequal access or use among women. Digital variables were not statistically significant for account ownership and borrowing, indicating that structural barriers, such as socio-cultural norms, continue to limit women's access to financial services. These results suggest that while digital infrastructure and access are essential, they are not sufficient on their own to achieve financial inclusion. The study emphasizes the necessity of comprehensive structural reforms, including the strengthening of women's legal rights, the enhancement of financial regulations, the development of inclusive financial products tailored to women's needs, the improvement of digital literacy, and the addressing of socio-cultural barriers, to ensure equitable and meaningful access to financial services for women.

**Contribution/Originality:** Unlike previous literature that often treats digitalization as a uniform enabler of inclusion, this research disaggregates its effects on account ownership, savings, and borrowing, revealing nuanced outcomes. Additionally, it encompasses digital independent variables, including internet usage, digital payments, and a technology and innovation index that were previously unaddressed.

DOI: 10.55493/5004.v15i3.5499

ISSN(P): 2306-983X / ISSN(E): 2224-4425

**How to cite:** Sultana, A. (2025). Does financial inclusion gender gap persist in the digital world? *Asian Journal of Empirical Research*, 15(3), 65–75. 10.55493/5004.v15i3.5499

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## 1. INTRODUCTION

Financial inclusion is widely recognized as a crucial driver of economic growth, poverty reduction, and gender equality. Access to formal financial services empowers individuals to save, invest, and manage risks, thereby contributing to individual well-being and broader economic development (World Bank, 2025). There is a positive correlation between financial inclusion and the achievement of the 2nd, 5th, and 8th Sustainable Development Goals (SDGs) (Yap, Shan Lee, & Xin Liew, 2023). However, Antonijević, Ljumović, and Ivanović (2022) and Razzaq, Qin, Zhou, Mahmood, and Alnafissa (2024) state that financial inclusion initiatives have expanded women's access to formal banking, but deeper gender inequalities still limit their transformative potential. According to the World Bank (2025) 745 million women globally still lack access to formal financial services. Aziz, Sheikh, and Shah (2022) reveal a

significant association between gender and the use of financial services, with women having fewer bank accounts. Girón, Kazemikhasragh, Cicchiello, and Panetti (2022) indicate that youth and women remain among the groups most excluded from financial inclusion in Asia and Africa's least developed countries (LDCs). Moreover, women in LDCs are more vulnerable to financial exclusion compared to men (Cicchiello, Kazemikhasragh, Monferrá, & Girón, 2021).

On the other hand, digital financial services (DFS), such as mobile banking, e-wallets, and online payments, have expanded rapidly over the past decades, offering new opportunities to reach unbanked populations (Gibson, Gazi, & Arner, 2024; Khera, Ogawa, Sahay, & Vasisht, 2022). Some recent research and global policy initiatives strongly support the idea that digitalisation will reduce the gender gap in financial inclusion. DFS, such as mobile banking, digital payments, and fintech platforms, have the potential to overcome traditional barriers that have historically limited women's access to formal financial systems, including limited mobility, lack of documentation, and restrictive social norms (World Bank, 2021). For example, mobile money platforms enable women to save, transact, and receive remittances without visiting a physical bank, which is particularly significant in regions where cultural or logistical factors constrain women's mobility (UN Women, 2021).

Empirical evidence from India's Satna District shows that digital financial inclusion empowers women economically and enhances their confidence and decision-making abilities within households (Khare, Bharti, & Jain, 2024). Similarly, a study in Sub-Saharan Africa found that access to mobile money services led to increased savings and economic resilience among women, helping them to manage household finances and invest in small businesses (Suri & Jack, 2016). The World Bank's Global Findex Database 2021 reports that the gender gap in account ownership has narrowed from seven percentage points in 2017 to four points in 2021, illustrating tangible progress linked to digital financial inclusion initiatives (World Bank, 2021). These advancements highlight DFS's capacity to democratize financial access, particularly in rural and low-income regions where traditional banking infrastructure is sparse (Alliance for Financial Inclusion (AFI), 2010).

However, persistent challenges remain, including gaps in digital literacy, unequal access to technology, and ongoing social norms that hinder women's full participation in digital finance (GSMA, 2023; UN Women, 2021). For instance, research from Ethiopia highlights that while digital payments can serve as an entry point to broader financial inclusion, socioeconomic disadvantages still limit women's uptake of these services (Endashaw & Shumetie, 2023). There is also evidence that income significantly influences financial inclusion for both genders (Shabir & Ali, 2022). Dar and Ahmed (2021) indicated that gender, age, education, and income are crucial in shaping financial inclusion. These same factors also significantly influence individuals' tendencies to engage in informal saving and borrowing practices. Besides, DFS has the potential to significantly empower women economically, but social, infrastructural, and institutional barriers limit this potential (Roy & Patro, 2022).

In this context, the current study seeks to critically examine whether digitalization significantly reduces the gender gap in financial inclusion across lower-middle- and low-income countries. While the prevailing narrative suggests that digital tools level the playing field, this research aims to evaluate whether access to the internet, readiness for frontier technologies, and engagement in digital payments translate into narrower gender gaps in financial access. By analyzing comprehensive cross-country data and focusing on gender-disaggregated outcomes in account ownership, savings, and borrowing, the study investigates the extent to which digitalization reduces the gender gap in financial inclusion. This inquiry is essential not only for assessing the real impact of digital transformation on gender equality but also for guiding policy frameworks that prioritize equitable access to emerging financial technologies.

## 2. LITERATURE REVIEW

### 2.1. Economic Empowerment and Financial Inclusion of Women

Economic empowerment of women is fundamental for achieving gender equality, reducing poverty, and driving inclusive economic growth (Gugan, 2024). When economically empowered women gain greater agency over their lives, they participate more actively in decision-making and contribute to household and national prosperity (Kabeer, 1999). Evidence shows that increasing women's participation in the labor force and economic activities leads to higher economic diversification and income equality, which are crucial for shared prosperity and sustainable development (Gates Foundation, 2020; Sida, 2015). For instance, studies indicate that doubling female employment could result in a 31% increase in GDP in countries like Bangladesh, demonstrating the macroeconomic benefits of empowering women (World Vision, 2021).

Women's economic empowerment also enhances human capital development. Women with access to and control over resources are more likely to invest in their children's education, health, and nutrition, thereby improving overall family well-being and breaking cycles of intergenerational poverty (Gates Foundation, 2020; Sida, 2015). Furthermore, gender equality in economic participation leads to a more optimal allocation of resources, higher productivity, and stronger, more resilient economies (Sida, 2015). It is evident that women's empowerment and economic development are deeply interconnected: on one hand, economic growth can significantly reduce gender inequality; on the other hand, empowering women can actively contribute to broader development outcomes (Duflo, 2012).

When financial inclusion is the agenda for development, it is said that opening accounts in formal financial institutions provides women with security, privacy, and control over their finances (Demirgüç-Kunt, Klapper, & Singer, 2013). Besides, formal accounts protect savings from theft, loss, or unwanted claims by others, and offer women the ability to manage their resources independently (Chen & Snodgrass, 2001; Women's World Banking, 2021). Financial inclusion through formal accounts is a powerful tool for overcoming gender disparities, enabling women to break free from traditional roles, pursue entrepreneurship, and gain financial independence (Women's World Banking, 2021). Having a bank account also fosters financial literacy and confidence, empowering women to

make informed decisions, plan for the future, and respond effectively to emergencies. This financial autonomy can lead to increased self-esteem and greater influence in household and community decision-making (RBL Bank, 2024).

On the other hand, saving in banks enables women to build assets securely, diversify their savings, and access financial products tailored to their needs (Fletschner & Kenney, 2011). Women who save formally are better equipped to support their families, invest in businesses, and withstand financial shocks (Women's World Banking, 2021). Formal savings also encourage long-term planning and risk-taking, which are essential for entrepreneurship and economic advancement (Dupas, Keats, & Robinson, 2019). Additionally, borrowing from formal financial institutions rather than informal sources offers women lower interest rates, greater transparency, and more predictable repayment terms (Berger, 1989). Formal credit helps women invest in business ventures, education, and home improvements, fostering economic growth and stability (Niethammer, 2013). Moreover, access to formal credit reduces reliance on high-cost informal lenders and the social stigma often associated with borrowing from family or local moneylenders (Chen & Snodgrass, 2001). As women engage more with formal financial services, they gain greater decision-making power over household finances and are more likely to invest in opportunities that benefit their families and communities (Women's World Banking, 2021).

## 2.2. Digital World

In this study, internet access, readiness for frontier technologies, and the ability to make or receive digital payments are independent variables that serve as fundamental catalysts for the digital world. Internet access functions as the foundation for digital participation, enabling citizens to engage in education, healthcare, economic activities, and civic life, while bridging social divides and providing a gateway to global markets (Verma, 2024; World Economic Forum, 2024). Universal internet access is essential for achieving the SDGs, as it drives economic growth, social inclusion, and environmental sustainability (Mahalakshmi et al., 2024). Despite its importance, significant disparities remain, with low-income nations experiencing limited access and thus being at risk of exclusion from the digital economy (World Economic Forum, 2024). The lack of Internet access for 4.2 billion people, especially in developing countries, is a significant barrier to economic growth (West, 2015).

Readiness for frontier technologies, such as artificial intelligence, blockchain, and the Internet of Things, is equally crucial, as these innovations drive economic growth and competitiveness (Johnson & Markey-Towler, 2020). The UNCTAD (2022) and UNCTAD (2023) highlight that countries with robust infrastructure, skilled labor, and supportive policies are better positioned to benefit from the \$350 billion frontier technology market, which is expected to grow to \$3.2 trillion by 2025. However, while frontier technologies offer significant potential for economic and social development, a major technology divide persists, particularly in developing countries (Lorenz & Kraemer-Mbula, 2023). Developing nations often lag in this area due to financial and infrastructural constraints, resulting in regional disparities and missed opportunities for innovation (UNCTAD, 2022, 2023).

Besides, digital payment systems have the potential to significantly enhance financial inclusion and contribute to social sustainability, especially in developing and emerging market countries (Alexander & Karametaxas, 2021). Fintech-enabled digital payment systems can reduce costs, enhance speed, security, and transparency, and deliver more customized financial solutions that effectively reach low-income populations on a large scale (World Bank Group, 2020). It is reshaping banking operations in developing economies by improving efficiency and promoting financial inclusion through technologies like AI, blockchain, and mobile platforms (Ononiwu, Onwuzulike, Shitu, & Ojo, 2024). It also empowers small and medium enterprises to reach global markets, boost consumer spending, and enhance government efficiency, potentially generating up to \$470 billion annually for cities (Duralia, 2024; Resilient Cities Network, 2023).

## 2.3. Digitalisation of Financial Services and Women

Nzilano and Magoti (2025) state that digital banking services, especially mobile money and agent banking, play a vital role in promoting financial inclusion among women entrepreneurs. To bridge the gender gap in financial services in Sub-Saharan Africa, Okoyeuzu (2020) also emphasizes deploying mobile money agents and interoperable digital payment systems, alongside tackling cultural, legal, and infrastructural constraints. Besides, fintech serves as an effective equalizer by boosting women's access to financial services, enhancing entrepreneurship, and raising their wages, ultimately narrowing the gender wage gap (Guo, Chen, & Zeng, 2021). Ram (2023) highlights the need for targeted interventions such as financial literacy programs, women-centric banking services, and digital access initiatives to bridge the gender gap and ensure meaningful financial inclusion for women.

However, digitalization's impact on the financial inclusion gender gap is a complex interplay of empowerment and unintended exclusion. While DFS offers transformative potential for women's economic participation, persistent structural inequalities and gendered barriers risk widening the gap in contexts where socio-cultural, infrastructural, and policy challenges remain unaddressed. Women face systemic disadvantages in digital skills and technology access. In Sub-Saharan Africa, men are 30% more likely to use the internet, while 45% of women cite limited digital literacy as a barrier to mobile phone ownership (Consultative Group to Assist the Poor (CGAP), 2022; GSMA, 2023). Also, in Ethiopia, only 28% of women use mobile banking compared to 41% of men, driven by lower incomes and educational attainment (Endashaw & Shumetie, 2023). Additionally, cultural norms frequently restrict women's autonomy in financial decision-making. In Bangladesh, 67% of women prefer female agents for DFS due to social stigma around interacting with male providers (GSMA, 2023).

Many fintech solutions sometimes do not address women's unique needs. For example, microloan algorithms often penalize women with irregular income streams, while group-based credit models, which are critical for peer support, are declining with digitization (GSMA, 2023). In Kenya, digital credit apps worsened gender disparities, as women faced higher default rates due to income volatility and lower financial literacy (Johnen & Mußhoff, 2023). In Sub-Saharan Africa, mobile money adoption has narrowed the gender gap by 7% in countries like Tanzania; however,

urban-rural divides persist, as women in rural areas are 40% less likely to use DFS due to connectivity issues (Gibson et al., 2024).

### 3. DATA AND METHODOLOGY

This study investigates the impact of digitalization on the gender gap in financial inclusion across lower-middle- and low-income countries. The Global Findex Database is used to extract dependent variables and one independent variable. It was initiated by the World Bank in 2011 and serves as the most comprehensive data source on financial inclusion worldwide. Conducted every three years, in 2011, 2014, 2017, and 2021, the database offers insights into how adults across the globe access and use financial services, including payments, savings, credit, and financial resilience. These four surveys constitute the panel data set in this study, with another two datasets from World Bank Open Data and the Readiness for Frontier Technologies Index 2021. Descriptions are given in Table 1. Diagnostic statistics ( $R^2$ , Adjusted  $R^2$ , F-statistics, and Durbin-Watson) are reported to evaluate model fit and autocorrelation. A total of 37 lower-middle- and low-income countries were included in the final regression models, with observations ranging from 99 to 137, depending on data availability per variable.

**Table 1.** Description of variables.

Dependent variables		
	Descriptions	Data source
GGACC	Gender gap in having accounts in formal financial institutions. The variable was derived by subtracting the percentage of the female population above 15 years old who have accounts in formal financial institutions from the percentage of males above 15 years old who have accounts in formal financial institutions.	Global Findex Database 2021 (World Bank, 2021).
GGSAVE	Gender gap in savings in formal financial institutions. The variable was derived by subtracting the percentage of the female population above 15 years old who saved in formal financial institutions from the percentage of males above 15 years old who saved in formal financial institutions.	Global Findex Database 2021 (World Bank, 2021)
GGBOR	Gender gap in borrowing from formal financial institutions. The variable has been derived by subtracting the percentage of females over 15 years old borrowing from formal financial institutions from the percentage of males over 15 years old borrowing from formal financial institutions.	Global Findex Database 2021 (World Bank, 2021)
Independent variables		
	Descriptions	Data source
INT	Percentage of the population using the Internet. These are individuals who have used the Internet (from any location) in the last three months. The Internet can be accessed via a computer, mobile phone, personal digital assistant, gaming console, digital TV, etc.	(World Bank Open Data, 2025c)
TECH	The total score of the 'readiness for frontier technologies index 2021' is used as a time-invariant independent variable, which evaluates the capacity of countries to adopt and adapt emerging frontier technologies such as AI, IoT, blockchain, 3D printing, and more. The index is based on five main building blocks: ICT deployment, skills, R&D activity, industry activity, and access to finance. These factors are used to measure each country's readiness to use, adopt, and adapt frontier technologies effectively.	UNCTAD (2021)
DP	The percentage of the population above 15 years old who made or received a digital payment.	Global Findex Database 2021 (World Bank, 2021)
Control variables		
	Descriptions	Data source
GDP	Annual growth of gross domestic product (GDP) of countries.	World Bank Open Data (2025b)
NOB	Commercial bank branches per 100,000 adults.	World Bank Open Data (2025a)
REG	Regulatory quality reflects perceptions of the government's capacity to formulate and implement sound policies and regulations that facilitate and promote private sector development. The estimate provides the country's score on the aggregate indicator within a standard normal distribution, ranging from approximately -2.5 to 2.5.	World Bank Open Data (2025d)

The study employs Ordinary Least Squares (OLS) unbalanced panel regression to assess the effect of digitalization variables on each dimension of the financial inclusion gender gap: account ownership (GGACC), saving (GGSAVE), and borrowing (GGBOR). Four models were tested for each dependent variable to isolate the effects of INT, TECH, and DP, while controlling for GDP, NOB, and REG as described in Table 1. The models have been set as follows:

$$\text{Model 1: } GGFI_{ACC, SAVE, BOR} = \alpha + \beta_1 INT + \beta_2 GDP + \beta_3 NOB + \beta_4 REG + \varepsilon$$



$$\text{Model 2: } \text{GGFI}_{\text{ACC, SAVE, BOR}} = \alpha + \beta_1 \text{ TECH} + \beta_2 \text{ GDP} + \beta_3 \text{ NOB} + \beta_4 \text{ REG} + \varepsilon$$

$$\text{Model 3: } \text{GGFI}_{\text{ACC, SAVE, BOR}} = \alpha + \beta_1 \text{ DP} + \beta_2 \text{ GDP} + \beta_3 \text{ NOB} + \beta_4 \text{ REG} + \varepsilon$$

$$\text{Model 4: } \text{GGFI}_{\text{ACC, SAVE, BOR}} = \alpha + \beta_1 \text{ INT} + \beta_2 \text{ TECH} + \beta_3 \text{ DP} + \beta_4 \text{ GDP} + \beta_5 \text{ NOB} + \beta_6 \text{ REG} + \varepsilon$$

GGFI is the Gender Gap in Financial Inclusion for three domains: accounts, savings, and borrowing (GGACC, GGSAVE, and GGBOR).

*Control Variables:* The three control variables used in this study are not trivial. Empirical research demonstrates a positive correlation between increased access to financial services and GDP growth, as financial inclusion fosters higher savings, capital mobilization, entrepreneurship, and poverty reduction (Chehayeb & Taher, 2024; Cicchiello et al., 2021; Ozili, Ademiju, & Rachid, 2022). Further, a significant increase in the number of bank branches, particularly in underserved or rural areas, enhances access to formal financial services, enabling more individuals and businesses to participate in the economy (Young, 2015). Additionally, the World Bank (2015) highlights that proportional regulation and effective supervision are critical for fostering sustainable financial inclusion, especially for underserved groups such as the poor, women, and rural populations. Regulatory reforms that balance financial stability with the need for broader access, such as support for non-traditional service providers, are particularly effective in promoting private sector participation and expanding the reach of financial services (Alliance for Financial Inclusion (AFI), 2010).

#### 4. ANALYSIS AND FINDINGS

The figures presented in Figure 1 illustrate the variation in the gender gap in financial inclusion across countries with different income levels. In high-income countries, the gender gap is relatively narrow, indicating that both men and women enjoy high access to financial accounts and digital financial services. This can be attributed to strong digital infrastructure and greater economic equality, with the gap often falling below 5%. Upper-middle-income countries show narrower gaps than lower-middle-income ones, sharply decreasing from 2017. Lower middle-income countries exhibit wider disparities, though account opening shows a lower trend, while saving and borrowing are reckless. The most significant gender gap is found in low-income countries. Overall, the figures underscore that the financial inclusion gender gap tends to decrease as the economic status of countries improves, highlighting the need for targeted interventions in lower-income settings. Therefore, the targeted income groups in this study are lower-middle and low-income countries.

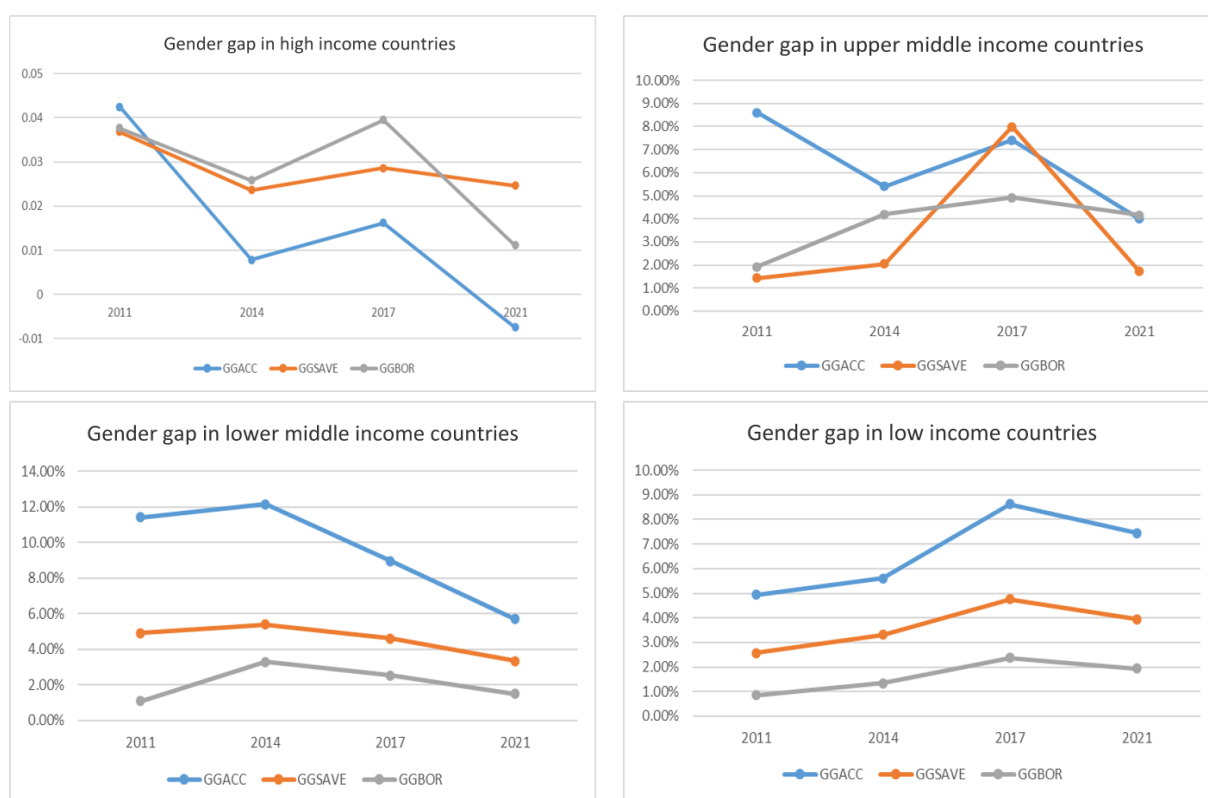


Figure 1. Financial inclusion gender gap in countries with different income levels.

Descriptive statistics in Table 2 show notable variability in gender gaps and digital access across countries. The mean gender gap in account ownership (GGACC) is 7.6%, while gaps in saving (GGSAVE) and borrowing (GGBOR) are 3.7% and 1.8%, respectively. Meanwhile, internet usage (INT) has a mean of 26.5%, reflecting the digital divide in many low-income settings.

**Table 2.** Descriptive statistics.

Variables	Observations	Mean	Stan. Dev.	Min.	Max.
GGACC	153	0.076	0.058	-0.039	0.239
GGSAVE	153	0.037	0.036	-0.037	0.175
GGBOR	153	0.018	0.031	-0.061	0.129
INT	148	26.517	20.841	0.900	85.300
TECH	160	0.241	0.165	0.030	0.620
DP	118	0.345	0.219	0.040	0.920
GDP	153	4.487	4.339	-20.739	14.620
NOB	142	8.581	9.597	0.382	71.946
REG	156	-0.707	0.487	-2.215	0.185

**Table 3.** Effect of digitalization on the gender gap in having accounts in formal financial institutions.

Independent Variables	Dependent variable: Financial inclusion gender gap			
	(1)	(2)	(3)	(4)
	GGACC	GGACC	GGACC	GGACC
INT	-0.00009 (0.72550)			-0.00053 (0.20240)
TECH		0.00093 (0.98070)		-0.00811 (0.88460)
DP			0.00443 (0.88420)	0.02159 (0.54120)
GDP	0.00139 (0.36960)	0.00121 (0.43280)	0.00166 (0.41430)	0.00163 (0.45500)
NOB	0.00048 (0.41310)	0.00031 (0.60180)	-0.00029 (0.63930)	0.00021 (0.75970)
REG	-0.01813 (0.1419)	-0.01987 (0.14480)	-0.01349 (0.36080)	-0.00564 (0.74030)
Constant	0.05715*** (0.00020)	0.05572*** (0.00230)	0.06784*** (0.00120)	0.08145*** (0.00250)
R <sup>2</sup>	0.03081	0.02747	0.01658	0.04240
Adjusted R <sup>2</sup>	0.00075	-0.00199	-0.02398	-0.02005
F-Statistics	1.02501	0.93221	0.40876	0.67892
Durbin-Watson	1.15066	1.16413	1.37619	1.37903
Observations	134	137	102	99
No. of Countries	38	38	37	37

Note: \*\*\*p<0.01.

In Table 3, the regression models exploring the influence of digital indicators on the gender gap in account ownership yield relatively low explanatory power, with R<sup>2</sup> values ranging from 0.016 to 0.042. None of the independent variables, INT, TECH, or DP, shows statistically significant effects across all four model specifications. Although the direction of the coefficients for digital variables generally suggests that higher digital access might be associated with a smaller gender gap, the effects are not robust. For instance, the coefficient for INT is negative in all relevant models, indicating that higher internet usage might reduce the gender gap in account ownership. However, the p-values (e.g., 0.725 in Model 1 and 0.202 in Model 4) indicate statistical insignificance. Similarly, TECH and DP show inconsistent signs and lack statistical significance.

These findings suggest that while digital access is important, structural factors such as cultural norms, legal identity, and institutional outreach may play a more dominant role in determining whether women open formal accounts. As such, improvements in digital infrastructure alone may not suffice without targeted gender-sensitive financial policies.

In contrast to account ownership, the digital variables show a more substantial impact on the gender gap in formal savings in Table 4. Model 3 and Model 4 reveal statistically significant results: DP shows a strong positive association with the savings gender gap. In Model 3, the coefficient is 0.04572 (p=0.012), and in Model 4, it is 0.05671 (p=0.006). This indicates that women cannot sustain overall participation in digital payments compared to men, resulting in a wide savings gender gap, which supports the findings of Ghosh (2022) that the mobile usage gap contributes to lower financial inclusion for women, especially among those living below the poverty line. INT is also significant in Model 4 (coefficient = -0.00048, p=0.0479), suggesting that increased internet access may reduce barriers preventing women from saving in formal institutions. This result indicates that with widening internet connections, women are participating more in savings, but they cannot compete with men in accessing digital payments. Instead, with an increase in the digital payment system, the gender gap increases. The finding here is consistent with the result of Pahlevan Sharif, Naghavi, Waheed, and Ehigiamusoe (2023), which found that women outperform men in the savings domain with proper support.

**Table 4.** Effect of digitalization on the gender gap in savings in formal financial institutions.

Independent Variables	Dependent variable: Financial inclusion gender gap			
	(1)	(2)	(3)	(4)
	GGSAVE	GGSAVE	GGSAVE	GGSAVE
INT	-0.00002 (0.88360)			-0.00048** (0.04790)
TECH		0.00008 (0.99690)		0.00711 (0.8254)
DP			0.04572** (0.01210)	0.05671*** (0.00640)
GDP	0.00100 (0.27410)	0.00106 (0.25280)	0.00124 (0.29880)	0.00094 (0.45640)
NOB	0.00034 (0.32500)	0.00027 (0.43820)	-0.00006 (0.86540)	0.00029 (0.44990)
REG	0.01161 (0.1115)	0.01137 (0.16470)	0.00916 (0.29340)	0.01338 (0.17480)
Constant	0.03534*** (0.00010)	0.03531*** (0.00130)	0.02303* (0.05840)	0.03311** (0.03130)
R <sup>2</sup>	0.03493	0.03290	0.10403	0.13075
Adjusted R <sup>2</sup>	0.00501	0.00359	0.06708	0.07406
F-Statistics	1.16727	1.12276	2.81573	2.30637
Durbin-Watson	1.16944	1.12245	1.37455	1.47496
Observations	134	137	102	99
No. of Countries	38	38	37	37

Note: \*\*\*p<0.01, \*\*p<0.05, \* p<0.10.

**Table 5.** Effect of digitalization on the gender gap in borrowing from formal financial institutions.

Independent Variables	Dependent variable: Financial inclusion gender gap			
	(1)	(2)	(3)	(4)
	GGBOR	GGBOR	GGBOR	GGBOR
INT	0.00017 (0.24060)			-0.00008 (0.69660)
TECH		0.01749 (0.37590)		-0.00085 (0.97740)
DP			0.00922 (0.56630)	0.00877 (0.64420)
GDP	-0.00087 (0.27370)	-0.00073 (0.35800)	-0.00169 (0.11540)	-0.00201* (0.08800)
NOB	-0.00016 (0.58720)	-0.00013 (0.66660)	0.00002 (0.97350)	0.00097 (0.78700)
REG	0.00537 (0.39590)	0.00461 (0.50900)	0.00951 (0.22360)	0.01035 (0.25910)
Constant	0.02155*** (0.00550)	0.02064*** (0.02660)	0.03279*** (0.00300)	0.03672 (0.01080)
R <sup>2</sup>	0.03152	0.02571	0.04983	0.05441
Adjusted R <sup>2</sup>	0.00149	-0.00381	0.01065	-0.00726
F-Statistics	1.04973	0.87091	1.27179	0.88227
Durbin-Watson	1.82928	1.80699	1.83608	1.88739
Observations	134	137	102	99
No. of Countries	38	38	37	37

Note: \*\*\*p<0.01, \*\*p<0.05, \* p<0.10.

In the case of formal borrowing in Table 5, none of the digital variables display statistically significant coefficients across all models. Borrowing decisions often involve more complex institutional processes, such as credit scoring, collateral, or financial history, where women are frequently disadvantaged due to systemic exclusion. Women may lack the required documentation or creditworthiness even in digitally enabled environments. The lack of significant results for borrowing aligns with literature pointing to persistent barriers, such as lower financial literacy, irregular income flows, and risk aversion among women borrowers, particularly in low- and lower-middle-income countries.

*Checking Endogeneity:* Endogeneity occurs when an explanatory (independent) variable in a regression model is correlated with the error term. The control function approach is applied to detect endogeneity in models, which involves running regressions with the residual series of independent variables. The approach originates from seminal econometric work by Rivers and Vuong (1988) and Smith and Blundell (1986). This approach has since been widely adopted and extended in panel data contexts by authors such as Papke and Wooldridge (2008) and Wooldridge (2005).

**Table 6.** Checking endogeneity in models.

Independent Variables	Dependent variable: Financial inclusion gender gap		
	(1)	(2)	(3)
	GGACC	GGSAVE	GGBOR
RES_INT	-0.00073 (0.16700)	-0.00029 (0.33690)	-0.00008 (0.78600)
RES_TECH	-0.05304 (0.41400)	-0.00918 (0.8061)	-0.00535 (0.87810)
RES_DP	-0.00383 (0.92320)	0.04671* (0.06390)	0.00610 (0.77520)
GDP	0.00209 (0.30650)	0.00082 (0.48910)	-0.00199* (0.07330)
NOB	-0.00017 (0.77200)	0.00027 (0.41960)	0.00007 (0.81870)
REG	-0.01136 (0.42440)	0.01621** (0.05030)	0.01024 (0.18160)
Constant	0.06769*** (0.00010)	0.04198*** (0.00000)	0.03684*** (0.00000)
R <sup>2</sup>	0.04240	0.13075	0.05441
Adjusted R <sup>2</sup>	-0.02005	0.07406	-0.00726
F-Statistics	0.67892	2.30637	0.88227
Durbin-Watson	1.37903	1.47496	1.88739
Observations	99	99	99
No. of Countries	37	37	37

Note: \*\*\*p<0.01, \*\*p<0.05, \* p<0.10.

In Table 6, all control function residuals (RES\_INT, RES\_TECH, RES\_DP) are statistically insignificant, suggesting no evidence of endogeneity for the included regressors in this model. Only one residual term (RES\_DP in Model 2 of GGSAVE) is weakly significant at the 10% level, which suggests that any potential endogeneity is minor or context-specific. This is not robust enough to claim strong or consistent evidence of endogeneity. Also, the 5% threshold aligns with broader statistical practice for hypothesis testing, including endogeneity tests (Kock, 2022; Stock & Yogo, 2003).

## 5. CONCLUSION

This study investigated whether digitalization, through increased internet access, digital payment usage, and readiness for frontier technologies, has effectively reduced the gender gap in financial inclusion across lower-middle- and low-income countries. The findings reveal that while digital tools have potential, their impact is limited and inconsistent. Internet access shows some significance in reducing the gender gap in savings, but digital payments appear to widen this gap, possibly due to unequal access and usage patterns. Moreover, none of the digital variables significantly reduces the gender gap in account ownership or borrowing from formal financial institutions. These results indicate that digitalization alone cannot overcome deeply rooted socio-economic and cultural barriers that continue to restrict women's financial inclusion. Structural disadvantages such as limited digital literacy, lower income, and restrictive social norms still dominate women's access to and use of digital financial services.

## 6. PRACTICAL IMPLICATIONS AND FUTURE RESEARCH DIRECTIONS

The findings suggest that digitalization contributes to narrowing the gender gap in savings but has a limited impact on other aspects of financial inclusion. Policymakers should continue expanding digital infrastructure and promoting digital financial literacy among women. However, these efforts must be complemented by broader structural reforms, including improving women's legal rights, financial regulations that promote inclusive lending, and addressing socio-cultural barriers, as there is evidence that differences in socio-economic factors between men and women are key contributors to the gender gap in financial inclusion (Ghosh & Chaudhury, 2019). This study also supports the view of Caron (2022) that digital technologies may replicate rather than reduce existing financial inequalities unless structural barriers are addressed. Therefore, comprehensive strategies beyond technology adoption are necessary to achieve genuine financial inclusion for women in lower-income economies, as tailored, gender-sensitive interventions are essential for meaningful economic participation (Sarkar, Nair, & Rao, 2023).

Targeted digital literacy and capacity-building programs for women are essential, especially in rural and low-income areas, as suggested by Hasan, Ashfaq, Parveen, and Gunardi (2023); Balasubramanian and Kuppusamy (2021) and Widyastuti, Respati, Dewi, and Soma (2024). These initiatives should focus on equipping women with the skills to navigate mobile banking, digital payments, and online financial platforms. Additionally, fintech companies must design inclusive financial products tailored to women's needs, particularly for those with irregular income or limited technological access. Furthermore, expanding agent banking networks with a focus on female agents can help overcome cultural barriers that limit women's engagement with male service providers. Lastly, governments should integrate digital finance strategies with broader gender equality and economic empowerment policies to create a more holistic and inclusive digital financial ecosystem.

Future research should delve deeper into the behavioral and contextual factors influencing women's use of digital financial services. Studies using household- or individual-level data could provide insights into women's financial decision-making, digital engagement, and barriers to access. Longitudinal research tracking how digital inclusion



evolves over time would help assess the sustainability of digital finance interventions. Moreover, an intersectional approach that considers age, education, geographic location, and social identity would offer a more nuanced understanding of financial inclusion gaps.

**Funding:** This study received no specific financial support.

**Institutional Review Board Statement:** Not applicable.

**Transparency:** The author states that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

**Competing Interests:** The author declares that there are no conflicts of interests regarding the publication of this paper.

## REFERENCES

- Alexander, K., & Karametaxas, X. (2021). Digital transformation and financial inclusion. In I. Chiu & G. Deipenbrock (Eds.), *Routledge Handbook of Financial Technology and Law*. In (pp. 273–290). London, United Kingdom: Routledge.
- Alliance for Financial Inclusion (AFI). (2010). *The 2010 AFI survey report on financial inclusion policy in developing countries: Preliminary findings (Survey Report)*. Kuala Lumpur, Malaysia: Alliance for Financial Inclusion. <https://g24.org/wp-content/uploads/2024/06/G-24-AFI-Roundtable-on-Financial-Inclusion-AFI-Survey-on-Financial-Inclusion-Policy.-Preliminary-Findings-04.2010.pdf>
- Antoničević, M., Ljumić, I., & Ivanović, Đ. (2022). Is there a gender gap in financial inclusion worldwide? *Journal of Women's Entrepreneurship and Education*(1-2), 79-96.
- Aziz, F., Sheikh, S. M., & Shah, I. H. (2022). Financial inclusion for women empowerment in South Asian countries. *Journal of Financial Regulation and Compliance*, 30(4), 489-502.
- Balasubramanian, S. A., & Kuppusamy, T. (2021). Does female labour force participation contribute to better financial inclusion? Evidence from cross-country analysis. *Journal of Economic and Administrative Sciences*, 37(4), 643-658.
- Berger, M. (1989). Giving women credit: The strengths and limitations of credit as a tool for alleviating poverty. *World Development*, 17(7), 1017-1032.
- Caron, L. (2022). Empty digital wallets: new technologies and old inequalities in digital financial services among women. *Oxford Open Economics*, 1, odac001.
- Chehayeb, R. J., & Taher, H. (2024). The relationship between financial inclusion and economic growth: Empirical study from MENA countries. *Global Business & Finance Review*, 29(7), 153-167.
- Chen, M. A., & Snodgrass, D. (2001). *Managing resources, activities, and risk in urban India: The impact of sewa bank*. Washington, D.C: USAID AIMS Project. <https://www.wiego.org/wp-content/uploads/2019/09/Chen-Snodgrass-AIMS-Study-of-SEWA-Bank.pdf>
- Cicchello, A. F., Kazemikhasragh, A., Monferrá, S., & Girón, A. (2021). Financial inclusion and development in the least developed countries in Asia and Africa. *Journal of Innovation and Entrepreneurship*, 10(1), 49. <https://doi.org/10.1186/s13731-021-00190-4>
- Consultative Group to Assist the Poor (CGAP). (2022). *BLOG 08 March 2022 Break the Bias: Evidence shows digital finance risks hit women hardest*. Washington, D.C: CGAP. <https://www.cgap.org/blog/break-bias-evidence-shows-digital-finance-risks-hit-women-hardest>
- Dar, A. B., & Ahmed, F. (2021). Financial inclusion determinants and impediments in India: Insights from the global financial inclusion index. *Journal of Financial Economic Policy*, 13(3), 391-408.
- Demirgüç-Kunt, A., Klapper, L. F., & Singer, D. (2013). *Financial inclusion and legal discrimination against women: Evidence from developing countries*. Retrieved from World Bank Policy Research Working Paper, No. (6416).
- Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature*, 50(4), 1051-1079.
- Dupas, P., Keats, A., & Robinson, J. (2019). The effect of savings accounts on interpersonal financial relationships: Evidence from a field experiment in rural Kenya. *The Economic Journal*, 129(617), 273-310.
- Duralia, O. (2024). The impact of digital marketing on consumer behaviour. *Studies in Business and Economics*, 19(2), 96-109.
- Endashaw, M., & Shumetie, A. (2023). *Digital payment and the gender gap in financial inclusion: Evidence from Ethiopia (Policy Working Paper No. 15/2023)*. Retrieved from Ethiopian Economics Association, Addis Ababa, Ethiopia. <https://www.afi-global.org/wp-content/uploads/2025/03/Ecuador-Closing-The-Gender-Gap-Case-Study.pdf>
- Fletschner, D., & Kenney, L. (2011). *Rural women's access to financial services: Credit, savings, and insurance*. Retrieved from FAO Agricultural Development Economics Working Paper No. 11-07, Food and Agriculture Organization of the United Nations, Rome, Italy.
- Gates Foundation. (2020). *Women's economic empowerment*. Retrieved from <https://www.gatesfoundation.org/our-work/programs/gender-equality/womens-economic-power>
- Ghosh, C., & Chaudhury, R. H. (2019). Gender gap in case of financial inclusion: An empirical analysis in Indian context. *Economics Bulletin*, 39(4), 2615-2630.
- Ghosh, S. (2022). Gender and financial inclusion: does technology make a difference? *Gender, Technology and Development*, 26(2), 195-213.
- Gibson, E. C., Gazi, S., & Arner, D. W. (2024). Digital finance, financial inclusion and gender equality: Strategies for economic empowerment of women. *University of Pennsylvania Journal of International Law*, 45(1), 189-257.
- Girón, A., Kazemikhasragh, A., Cicchiello, A. F., & Panetti, E. (2022). Financial inclusion measurement in the least developed countries in Asia and Africa. *Journal of the Knowledge Economy*, 13(2), 1198-1211.
- GSMA. (2023). *The mobile gender gap report 2023*. London, United Kingdom: GSMA. <https://www.gsma.com/r/wp-content/uploads/2025/05/The-Mobile-Gender-Gap-Report-2025.pdf>
- Gugan, S. S. (2024). Role of women in economic development. *International Journal of Economics*, 12(2), 94-103.
- Guo, Q., Chen, S., & Zeng, X. (2021). Does FinTech narrow the gender wage gap? Evidence from China. *China & World Economy*, 29(4), 142-166.
- Hasan, R., Ashfaq, M., Parveen, T., & Gunardi, A. (2023). Financial inclusion—does digital financial literacy matter for women entrepreneurs? *International Journal of Social Economics*, 50(8), 1085-1104.
- Johnen, C., & Mußhoff, O. (2023). Digital credit and the gender gap in financial inclusion: Empirical evidence from Kenya. *Journal of International Development*, 35(2), 272-295.

- Johnson, N., & Markey-Towler, B. (2020). *Economics of the fourth industrial revolution: Internet, artificial intelligence and blockchain*. London: Routledge.
- Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change*, 30(3), 435-464.
- Khare, S., Bharti, V., & Jain, P. (2024). Impact of digital financial inclusion on women empowerment: A study of Satna District. *Educational Administration: Theory and Practice*, 30(4), 5849-5869.
- Khera, P., Ogawa, S., Sahay, R., & Vasishth, M. (2022). *The digital gender gap. Finance & Development*. Washington, D.C., USA: International Monetary Fund. <https://www.imf.org/en/Publications/fandd/issues/2022/12/the-digital-gender-gap-khera-ogawa-sahay-vasishth>
- Kock, N. (2022). Testing and controlling for endogeneity in PLS-SEM with stochastic instrumental variables. *Data Analysis Perspectives Journal*, 3(3), 1-15.
- Lorenz, E., & Kraemer-Mbula, E. (2023). Measuring frontier technology adoption in developing countries. In Handbook of Innovation Indicators and Measurement. In (pp. 260-277). Cheltenham, UK: Edward Elgar Publishing.
- Mahalakshmi, S., Nallasivam, A., N. A. S. I. K., Desai, K., Kautish, S., & Ghoshal, S. (2024). *Universal access to Internet and sustainability: Achieving the UN's Sustainable Development Goals*. In M. Kumar, H. Purohit, & D. B. Rawat (Eds.), *Digital technologies to implement the UN Sustainable Development Goals*. Cham: Springer.
- Niethammer, C. (2013). Women, entrepreneurship and the opportunity to promote development and business. *Brookings Blum Roundtable Policy Brief*, 37, 1-10.
- Nzilano, K. L., & Magoti, S. N. (2025). Digitalisation of banking services and financial inclusion potential of women entrepreneurs in Dodoma Municipality, Tanzania. *African Journal of Empirical Research*, 6(2), 398-411.
- Okoyeuzu, C. (2020). Closing gender financial inclusion gap: A panacea for equity & resilience in Sub-Saharan Africa. *Journal of Money, Banking and Finance*, 6(1), 77-87.
- Ononiwu, M. I., Onwuzulike, O. C., Shitu, K., & Ojo, O. O. (2024). The impact of digital transformation on banking operations in developing economies. *World Journal of Advanced Research and Reviews*, 23(3), 460-474.
- Ozili, P. K., Ademiju, A., & Rachid, S. (2022). Impact of financial inclusion on economic growth: Review of existing literature and directions for future research. *International Journal of Social Economics*, 50(8), 1105-1122.
- Pahlevan Sharif, S., Naghavi, N., Waheed, H., & Ehigiamusoe, K. U. (2023). The role of education in filling the gender gap in financial inclusion in low-income economies. *International Journal of Emerging Markets*, 18(12), 5755-5777.
- Papke, L. E., & Wooldridge, J. M. (2008). Panel data methods for fractional response variables with an application to test pass rates. *Journal of Econometrics*, 145(1-2), 121-133.
- Ram, A. (2023). Understanding fintech gender gap: A survey on financial literacy, inclusion and fintech use. *Open Journal of Business and Management*, 11(6), 3518-3538.
- 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.
- RBL Bank. (2024). *Why should women have their own savings account?* Mumbai, India: RBL Bank. <https://www.rblbank.com/blog/banking/savings-account/why-should-women-have-their-own-savings-account>
- Resilient Cities Network. (2023). *Why are digital payments a key element of digital transformation?* Retrieved from <https://futureready.resilientcitiesnetwork.org/why-are-digital-payments-a-key-element-of-digital-transformation/>
- Rivers, D., & Vuong, Q. H. (1988). Limited information estimators and exogeneity tests for simultaneous probit models. *Journal of Econometrics*, 39(3), 347-366.
- Roy, P., & Patro, B. (2022). Financial inclusion of women and gender gap in access to finance: A systematic literature review. *Vision*, 26(3), 282-299.
- Sarkar, S., Nair, S., & Rao, M. V. V. (2023). Exploring the gender dimension in financial inclusion in India: Insights from the global finindex database. *Journal of Development Policy and Practice*, 8(2), 141-161.
- Shabir, S., & Ali, J. (2022). Determinants of financial inclusion across gender in Saudi Arabia: Evidence from the World Bank's Global Financial Inclusion survey. *International Journal of Social Economics*, 49(5), 780-800.
- Sida. (2015). *Supporting women's economic empowerment: Scope for Sida's engagement*. Stockholm, Sweden: Swedish International Development Cooperation Agency. <https://cdn.sida.se/publications/files/sida61849en-supporting-womens-economic-empowerment-scope-for-sidas-engagement.pdf>
- Smith, R. J., & Blundell, R. W. (1986). An exogeneity test for a simultaneous equation Tobit model with an application to labor supply. *Econometrica*, 54(3), 679-685.
- Stock, J. H., & Yogo, M. (2003). *Testing for weak instruments in linear IV regression*. Retrieved from NBER Technical Working Paper No. 284. National Bureau of Economic Research, Cambridge, MA. [https://scholar.harvard.edu/files/stock/files/testing\\_for\\_weak\\_instruments\\_in\\_linear\\_iv\\_regression.pdf](https://scholar.harvard.edu/files/stock/files/testing_for_weak_instruments_in_linear_iv_regression.pdf)
- Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354(6317), 1288-1292. <https://doi.org/10.1126/science.aah5309>
- UN Women. (2021). *Leveraging digital finance for gender equality and women's empowerment*. Retrieved from <https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2019/Leveraging-digital-finance-for-gender-equality-and-womens-empowerment-en.pdf>
- UNCTAD. (2021). *The technology and innovation report 2021*. Paper presented at the United Nations Conference on Trade and Development. [https://unctad.org/system/files/official-document/tir2020\\_en.pdf](https://unctad.org/system/files/official-document/tir2020_en.pdf)
- UNCTAD. (2022). *Readiness for frontier technologies index 2021*. Paper presented at the United Nations Conference on Trade and Development. <https://jsf.org/uploads/2022/12/readiness-for-frontier-technologies-index-1.pdf>
- UNCTAD. (2023). *Technology and innovation report*. Paper presented at the United Nations Conference on Trade and Development. [https://unctad.org/system/files/official-document/tir2022\\_en.pdf](https://unctad.org/system/files/official-document/tir2022_en.pdf)
- Verma, Y. K. (2024). Navigating the digital divide: Analyzing the debate on internet access as a fundamental right. *International Journal of Civil Law and Legal Research*, 4(1), 21-27.
- West, D. M. (2015). Digital divide: Improving Internet access in the developing world through affordable services and diverse content. In (pp. 1-30). Washington, DC: Center for Technology Innovation at Brookings. [http://www.brookings.edu/~media/research/files/papers/2015/02/13-digital-divide-developing-world-west-west\\_internet-access.pdf](http://www.brookings.edu/~media/research/files/papers/2015/02/13-digital-divide-developing-world-west-west_internet-access.pdf)
- Widyastuti, U., Respati, D. K., Dewi, V. I., & Soma, A. M. (2024). The nexus of digital financial inclusion, digital financial literacy and demographic factors: lesson from Indonesia. *Cogent Business & Management*, 11(1), 2322778.
- Women's World Banking. (2021). *Market opportunities for women's savings*. New York: Women's World Banking. <https://www.womensworldbanking.org/insights/womens-world-bankings-2021-impact-report/>

- Wooldridge, J. M. (2005). Fixed-effects and related estimators for correlated random-coefficient and treatment-effect panel data models. *Review of Economics and Statistics*, 87(2), 385-390. <https://doi.org/10.1162/0034653053970320>
- World Bank. (2015). *Policy reforms that support financial inclusion*. Retrieved from [https://ieg.worldbankgroup.org/sites/default/files/Data/reports/chapters/FI\\_Chap3.pdf](https://ieg.worldbankgroup.org/sites/default/files/Data/reports/chapters/FI_Chap3.pdf)
- World Bank. (2021). *The global index database 2021*. Retrieved from <https://www.worldbank.org/en/publication/globalindex>
- World Bank. (2025). *Gender | Digital finance inclusion*. Retrieved from <https://digitalfinance.worldbank.org/topics/gender>
- World Bank Group. (2020). *Digital financial services. Global Fintech*. Retrieved from <https://pubdocs.worldbank.org/en/230281588169110691/Digital-Financial-Services.pdf>
- World Bank Open Data. (2025a). *Commercial bank branches (per 100,000 adults)*. Retrieved from <https://data.worldbank.org/indicator/FB.CBK.BRCH.P5>
- World Bank Open Data. (2025b). *GDP growth (annual %)*. Retrieved from <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>
- World Bank Open Data. (2025c). *Individuals using the Internet (% of population)*. Retrieved from <https://data.worldbank.org/indicator/IT.NET.USER.ZS>
- World Bank Open Data. (2025d). *Regulatory quality: Estimate* Retrieved from <https://data.worldbank.org/indicator/RQ.ES>
- World Economic Forum. (2024). *How investing in connectivity and digital infrastructure can be a catalyst for inclusion and empowering people*. Retrieved from <https://www.weforum.org/stories/2024/12/a-digital-divide-persists-but-here-s-how-companies-can-help-to-close-it/>
- World Vision. (2021). *The role of economic empowerment of women on the economy of Ba. Dhaka: South Asian Network on Economic Modeling*. <https://www.wvi.org/sites/default/files/2022-06/WomenEconomicEmpowerment.pdf>
- Yap, S., Shan Lee, H., & Xin Liew, P. (2023). The role of financial inclusion in achieving financerelated sustainable development goals (SDGs): A cross-country analysis. *Economic Rsearch-Ekonomska Istraživanja*, 36(3), 1-18.
- Young, N. (2015). *Formal banking and economic growth: Evidence from a regression discontinuity analysis in India*. Boston, MA: Boston University. [https://www.bu.edu/econ/files/2015/05/Young\\_Banking\\_20150429.pdf](https://www.bu.edu/econ/files/2015/05/Young_Banking_20150429.pdf)