

ENHANCING FEMALE FINANCIAL LITERACY AND DIGITAL INCLUSION IN DEVELOPING ECONOMIES

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Abstract. This article examines how financial literacy and digital inclusion jointly shape women's financial outcomes in developing economies. Women have made substantial gains in access to financial accounts over the past decade, yet access alone has not delivered equal capability, use, or protection. Using a structured narrative review combined with a descriptive synthesis of the latest cross-country indicators from the Global Findex 2025, the GSMA Mobile Gender Gap Reports, and the OECD/INFE survey, the study maps gender gaps along an access–capability–use–outcome chain. The findings show that the gender gap in account ownership in low- and middle-income countries has narrowed to five percentage points, whereas women remain 12% less likely than men to use mobile internet and 36% less likely to own a mobile money account. Payments received directly into women's own accounts emerge as a powerful entry point, but only when combined with gender-intentional product design and complementary skills. The article argues that financial education, digital skills, and affordable, safe products should be delivered as a single package, and it sets out five policy priorities for governments, regulators, and financial service providers.

Keywords: female financial literacy, digital inclusion, financial inclusion, gender gap, developing economies, mobile money, digital financial literacy, women's empowerment, digital payments.

Introduction

Financial inclusion is widely regarded as a cornerstone of inclusive development, and the past decade has brought measurable progress. According to the Global Findex 2025, which draws on nationally representative surveys of about 145,000 adults in 141 economies, 79% of adults worldwide and 75% of adults in low- and middle-income countries (LMICs) now hold a financial account (Klapper et al., 2025). Women have been central to this progress: their account ownership in LMICs nearly doubled from 37% in 2011 to 73% in 2024 (World Bank, 2025), and the gender gap in account ownership has narrowed to five percentage points, less than half what it was a decade ago (Norris & Sharma, 2026).

Yet these headline figures conceal three persistent problems. First, about 700 million women worldwide still have no financial account (Bonfert & Norris, 2025). Second, owning an account is not the same as using it well: among account holders, women are less likely than men to save formally, borrow formally, and make digital payments, and they are less likely to say that they could raise emergency funds without difficulty (Bonfert & Norris, 2025). Third, the technology that now underpins financial access remains unevenly distributed. Women in LMICs are still 12% less likely than men to use mobile internet, which leaves 810 million women offline compared with 595 million men (GSMA, 2026). Financial knowledge is also unequal: worldwide, 35% of men are financially literate compared with 30% of women (Hasler & Lusardi, 2017).

These gaps interact. As financial services migrate to mobile phones, a woman's ability to benefit depends jointly on what she knows about money and on whether she can reach, operate, and trust a digital channel. The literature increasingly refers to this combination as digital financial literacy (Lyons & Kass-Hanna, 2021), and

evidence from South Asia and Sub-Saharan Africa suggests that both financial and digital literacy are important for building financial resilience (Kass-Hanna et al., 2022). In many countries, however, policies are organized in separate silos: financial education falls to central banks and finance ministries, while connectivity and digital skills fall to telecommunications regulators and operators. The risk is that each program addresses only one half of the problem.

This article therefore asks three questions: where along the chain from access to capability, use, and outcomes the largest gender gaps in developing economies now lie; which barriers and enablers explain them; and what the findings imply for policy and program design. The contribution is threefold: an integrated framework that treats financial literacy and digital inclusion as a single capability set; a synthesis of the most recent cross-country evidence, with data collected in 2024–2025; and an illustration, drawn from Uzbekistan, Iraq, and India, of how payment digitalization can narrow or widen gender gaps depending on its design.

Literature Review

Financial literacy is commonly understood as a combination of financial knowledge, financial behavior, and financial attitudes, the three components measured in the OECD/INFE surveys (OECD, 2023). Gender differences are large and widespread. Globally, only about one in three adults (33%) is financially literate, and the gap between men (35%) and women (30%) appears in almost every country (Hasler & Lusardi, 2017; Klapper et al., 2015).

Digital financial literacy extends this concept to the knowledge, skills, and attitudes needed to use digital financial services effectively and safely. Lyons and Kass-Hanna (2021) propose a multidimensional approach to defining and measuring it, and the 2023 OECD/INFE survey now covers digital financial literacy alongside financial knowledge, behavior, attitudes, inclusion, and well-being in 39 countries and economies (OECD, 2023). Empirically, Kass-Hanna, Lyons, and Liu (2022), using household surveys from seven South Asian and Sub-Saharan African

countries, found that financial and digital literacy are both key factors in resilience-building behaviors such as saving, borrowing, and risk management, and they argue for treating the two as a dual approach.

Mobile technology has been the main vehicle for extending financial services to women, and the effects of scaling can be large. Suri and Jack (2016) found that in Kenya access to the M-PESA mobile money system increased per capita consumption and lifted an estimated 194,000 households out of poverty, with larger effects for female-headed households and a shift of women from agriculture into business. Kabeer (1999), in turn, conceptualizes empowerment as the expansion of the ability to make strategic life choices through resources, agency, and achievements; in this view, owning an account is a resource, but using it autonomously is an expression of agency.

Evidence on what works is mixed but constructive. In an influential meta-analysis, Fernandes, Lynch, and Netemeyer (2014) found that financial education explains very little of the variance in financial behavior, with weaker effects in low-income samples and effects that decay over time. By contrast, Kaiser et al. (2022), in a meta-analysis of 76 randomized experiments with more than 160,000 participants, found that financial education programs on average have positive causal effects on both financial knowledge and downstream behaviors, of a size comparable to educational interventions in other domains.

Design features that change women's control over money appear to matter as much as training. Field et al. (2021) showed that in rural India, women who received their public-works wages directly into their own accounts and were trained to use them increased their labor supply, and three years later gender norms had liberalized.

Despite this body of work, several gaps remain. Financial literacy and digital inclusion are usually studied separately, the most direct global measures of financial literacy are now more than a decade old, and evidence on interventions comes mainly from a few settings, such as Kenya and India. This study seeks to address

these gaps by synthesizing the most recent cross-country evidence within a single access–capability–use–outcome framework, thereby contributing to a more integrated and context-specific understanding of how to enhance women's financial literacy and digital inclusion in developing economies.

Research Methodology

The study uses a structured narrative review combined with a descriptive synthesis of secondary data. No primary data were collected and no new statistical estimation was performed; indicators are reported as published by their originators. Sources were selected purposively using three criteria: (i) global or multi-country coverage of developing economies; (ii) availability of gender-disaggregated indicators; and (iii) methodological transparency, defined as peer-reviewed publication or the status of an established statistical program. The sources cover primarily the period 2014–2026, with one earlier conceptual source.

Three data sources anchor the empirical synthesis. The Global Findex 2025 provides nationally representative survey data for about 145,000 adults in 141 economies, collected during 2024, on account ownership, payments, saving, borrowing and, for the first time, mobile phone ownership and internet use (Klapper et al., 2025). The GSMA Mobile Gender Gap Reports provide the most recent indicators on women's mobile ownership and mobile internet use in LMICs, drawing on face-to-face surveys in a subset of countries (15 in the 2025 edition) and on extrapolation models to produce LMIC-level estimates (GSMA, 2025); the 2026 edition reports data for 2025 (GSMA, 2026). Evidence on financial literacy is drawn from the S&P Global Financial Literacy Survey (Hasler & Lusardi, 2017; Klapper et al., 2015) and the OECD/INFE 2023 survey (OECD, 2023).

Indicators were organized along an access–capability–use–outcome framework. Access refers to the preconditions for using digital financial services: identification, a phone and internet connection, and an affordable account. Capability refers to financial literacy and digital skills, including the ability to use

services safely. Active use refers to payments, formal saving, credit, and insurance. Outcomes refer to resilience, agency, and economic participation, which are assessed here from the experimental literature rather than from the cross-country surveys. The analysis then compares gender gaps across these stages, synthesizes the main barriers and the responses supported by the evidence, and examines a three-country illustration of payment digitalization based on the World Bank's analysis of Findex 2025 data (Norris & Sharma, 2026).

Two limitations of comparability are respected throughout. First, the Global Findex reports gaps as differences in percentage points, whereas GSMA reports relative gaps, that is, the percentage by which women's rate falls below men's; the two metrics are not additive and are never combined in this article. Second, the data refer to different years (2024 for Findex; 2024 and 2025 for GSMA) and to different country samples, and LMIC averages mask wide regional and national variation. Because the design is descriptive, it cannot establish causality: the causal claims reported come from the experimental studies cited, whose settings (Kenya, India) may not generalize.

Analysis and Results

Women's account ownership in LMICs reached 73% in 2024, up seven percentage points since 2021 (Bonfert & Norris, 2025). Progress is nevertheless uneven: meaningful gender gaps persist in 65 low- and middle-income economies, although they are narrowing in almost all of them (Klapper et al., 2025). Among unbanked women, not having enough money is the most frequently cited reason for not opening an account, followed by the cost of fees and the fact that a family member already has one (Bonfert & Norris, 2025).

Table 1 summarizes selected indicators of women's financial and digital inclusion in LMICs, compiled from the World Bank (2025), Bonfert and Norris (2025), GSMA (n.d.), and GSMA (2025, 2026). The first three indicators are percentages of women; the last two are relative gaps, that is, the percentage by which

women's rate falls below men's, and are therefore not comparable with percentage-point gaps. The table shows substantial gains in access and use, whereas the digital gaps are narrowing slowly or, in the case of mobile money, widening.

Table 1. Selected indicators of women's financial and digital inclusion in LMICs

№	Indicator	Earlier value	Latest value	Change (points)
1	Women with an account (%)	37 (2011)	73 (2024)	+36
2	Women saving formally in an account (%)	22 (2021)	36 (2024)	+14
3	Women making or receiving a digital payment (%)	50 (2021)	58 (2024)	+8
4	Mobile money ownership gap (relative, %)	30 (2021)	36 (2024)	+6
5	Mobile internet use gap (relative, %)	25 (2017)	12 (2025)	−13

Between 2021 and 2024, the share of women in LMICs saving formally in an account rose from 22% to 36%, and the share making or receiving a digital payment from 50% to 58% (Bonfert & Norris, 2025). However, among account holders, women remain less likely than men to save formally, borrow formally, or make digital payments (Bonfert & Norris, 2025). Behavior after receiving money is also revealing: women who receive digital government or wage payments are seven percentage points more likely than men to withdraw their full balance on receipt, and the most common reason account holders give for not paying merchants digitally is habit (Norris & Sharma, 2026).

The Global Findex 2025 does not measure literacy directly, so the capability dimension relies on other sources. The S&P Global Financial Literacy Survey, the most comprehensive global measure to date, found that two-thirds of adults worldwide are not financially literate, that the gender gap is five points (35% of men against 30% of women), and that roughly 80% of adults without bank accounts have weak financial literacy (Hasler & Lusardi, 2017; Klapper et al., 2015). These data are now more than a decade old, and the OECD/INFE 2023 round, which begins to

measure digital financial literacy, covers only 39 countries and economies (OECD, 2023). Within the available evidence the link between capability and behavior is consistent: both financial and digital literacy were associated with stronger saving, borrowing, and risk-management behaviors in seven South Asian and Sub-Saharan African countries (Kass-Hanna et al., 2022).

Mobile phones are the main bridge to financial services, and the digital gaps are wider than the account gap. Women in LMICs remain 8% less likely than men to own a mobile phone, which translates into roughly 400 million women without one, and 36% less likely to own a mobile money account, up from 30% in 2021 (GSMA, n.d.). An entry-level smartphone costs women an average of 24% of their monthly income, double the burden reported for men (GSMA, 2025).

Figure 1 illustrates the trend in the gender gap in mobile internet use. In 2017, women in LMICs were 25% less likely than men to use mobile internet; by 2020 the gap had fallen to 15%, but progress then stalled and the gap widened slightly in 2021 and 2022 (GSMA, 2025). It stood at 14% in 2024 and 12% in 2025 (GSMA, 2025, 2026). More than two-thirds of the 810 million women in LMICs who were still not using mobile internet in 2025 live in Sub-Saharan Africa and South Asia, where the gaps are 26% and 25%, respectively (GSMA, 2026).

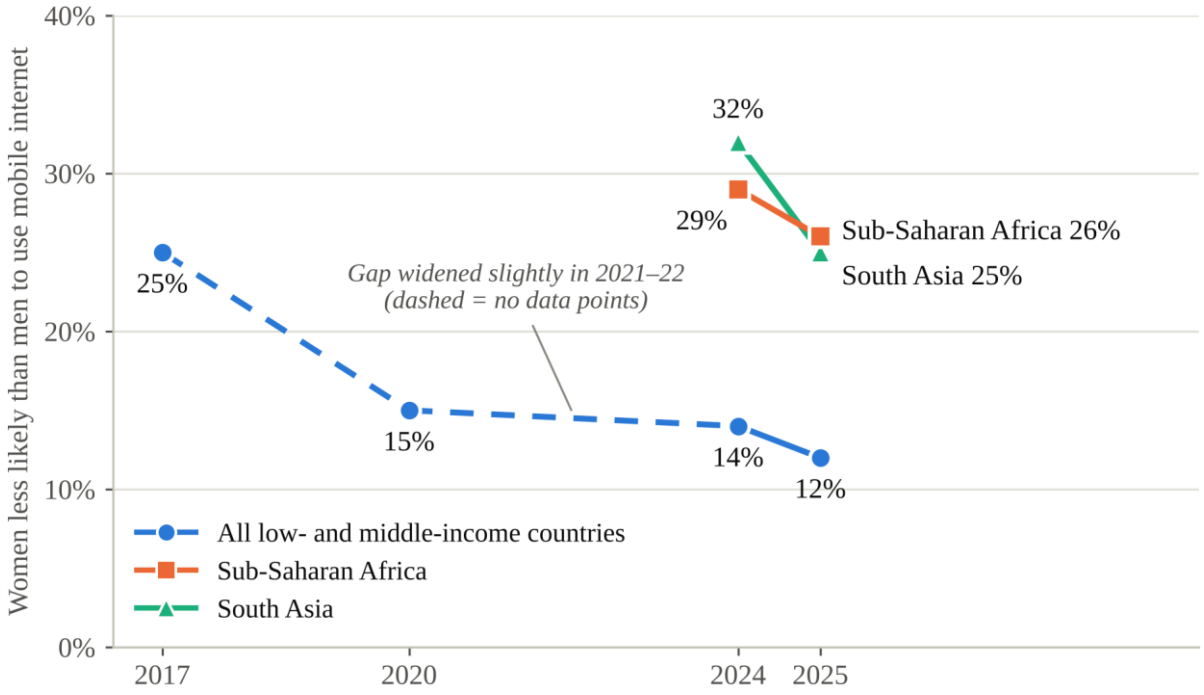


Figure 1. Gender gap in mobile internet use in low- and middle-income countries, 2017–2025

Payments are what prompt many women to open accounts: roughly 60% of women with an account in LMICs opened their first account to receive a payment directly into it from the government or an employer (Bonfert & Norris, 2025). Three countries illustrate how the same instrument can have different effects (Norris & Sharma, 2026). In Uzbekistan, the share of women receiving government-to-person (G2P) payments into an account rose from 20% to 34% between 2021 and 2024, while women's account ownership rose from 39% to 61%; men also gained, but by less, so women closed the gap. In Iraq, by contrast, women's ownership rose by only four percentage points while men's rose by 19 points, from 22% to 41%. In India, a third of women had an inactive account in 2021 compared with 18% in 2024, as the share of women receiving digital G2P payments rose from 13% to 24%.

The synthesis suggests that barriers cluster in six interacting domains: affordability, distance and documentation, social norms and household control, knowledge and confidence, digital skills and safety, and product fit. They operate together: a woman who cannot afford a phone cannot practice digital skills, and a

woman who does not control the household account has little reason to learn how to manage one. The experimental evidence is consistent with this pattern: Field et al. (2021) found that an own account, direct deposit of wages into it, and training in its use, rather than the account alone, raised women's labor supply and later shifted gender norms. Overall, the binding constraint is shifting from account access to capability and use, and digital finance can widen gaps as well as close them depending on its design.

Conclusion and Recommendations

This study has examined how financial literacy and digital inclusion jointly shape women's financial outcomes in developing economies. Women are closer to equal access to financial accounts than at any time in the past decade, with a gap of five percentage points in 2024 (Norris & Sharma, 2026). Yet equal access has not produced equal capability, equal digital connection, or equal use. Women remain 12% less likely than men to use mobile internet (GSMA, 2026), 36% less likely to own a mobile money account (GSMA, n.d.), and less likely to be financially literate (Hasler & Lusardi, 2017).

The evidence supports an integrated strategy in which financial education, digital skills, affordable connectivity, and women-friendly account design are delivered together and anchored in moments of real use, above all the receipt of wages and government payments into accounts that women control. Success should be judged by whether women use their accounts actively, safely, and on their own terms, not by the number of accounts opened.

Based on the findings, five recommendations are proposed. First, design for women's control: route wages and government transfers into accounts in women's own names, with gender-intentional know-your-customer rules and simple, low-cost account designs (Field et al., 2021; Norris & Sharma, 2026). Second, bundle capabilities with first use: embed digital financial literacy, including fraud awareness, in payment onboarding rather than in stand-alone courses (Fernandes et

al., 2014; Kaiser et al., 2022; Kass-Hanna et al., 2022). Third, close the connectivity gap in parallel with the account gap by addressing handset and data affordability (Bonfert & Norris, 2025; GSMA, 2025). Fourth, move from payments to the full range of services, including savings and credit for women's businesses, so that payments become an entry point rather than a destination (Bonfert & Norris, 2025; Norris & Sharma, 2026). Fifth, improve measurement: collect sex-disaggregated data on digital financial literacy and align concepts across the Findex, GSMA, and OECD/INFE instruments (Lyons & Kass-Hanna, 2021; OECD, 2023). These recommendations are derived from the evidence reviewed rather than from tested interventions.

For Uzbekistan and the wider Central Asian region, where payment digitalization has already shown how quickly account gaps can narrow (Norris & Sharma, 2026), the next policy frontier is less about opening accounts and more about ensuring that they are used for saving, borrowing, and business activity and that women are digitally equipped to use them safely. A natural step is to use the payment channels that brought women into the system to deliver financial and digital education, although this requires testing in the national context.

Finally, future research should address the limitations of this desk-based synthesis. The Findex, GSMA, and OECD/INFE instruments use different definitions and samples, and the most direct measures of financial literacy are older than the latest connectivity data. Future studies should combine Findex-type access and usage data with direct measurement of financial and digital literacy among the same women, ideally in panel or experimental designs, and should test whether embedding education in payment onboarding improves active use, savings, and agency.

References

1. Bonfert, A. T., & Norris, A. (2025, November 11). More women have financial accounts, yet equal access and use remain works in progress. World Bank Data Blog.

2. Fernandes, D., Lynch, J. G., Jr., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. Management Science, 60(8), 1861–1883.

3. Field, E., Pande, R., Rigol, N., Schaner, S., & Troyer Moore, C. (2021). On her own account: How strengthening women's financial control impacts labor supply and gender norms. American Economic Review, 111(7), 2342–2375.

4. GSMA. (n.d.). Progress in closing the mobile money gender gap has stalled: Latest evidence from Findex 2025. GSMA Mobile for Development.

5. GSMA. (2025). The Mobile Gender Gap Report 2025. GSMA Connected Women. https://www.gsma.com/gender-gap-2025/

6. GSMA. (2026, June 10). 810 million women still not using mobile internet in low- and middle-income countries, compared to 595 million men [Press release]. PR Newswire.

7. Hasler, A., & Lusardi, A. (2017). The gender gap in financial literacy: A global perspective. Global Financial Literacy Excellence Center, The George Washington University.

8. Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. Development and Change, 30(3), 435–464.

9. Kaiser, T., Lusardi, A., Menkhoff, L., & Urban, C. (2022). Financial education affects financial knowledge and downstream behaviors. Journal of Financial Economics, 145(2), 255–272.

10. Kass-Hanna, J., Lyons, A. C., & Liu, F. (2022). Building financial resilience through financial and digital literacy in South Asia and Sub-Saharan Africa. Emerging Markets Review, 51, 100846.

11. Klapper, L., Lusardi, A., & van Oudheusden, P. (2015). Financial literacy around the world: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey. Global Financial Literacy Excellence Center.

12. Klapper, L., Singer, D., Starita, L., & Norris, A. (2025). The Global Findex Database 2025: Connectivity and financial inclusion in the digital economy. World Bank. https://hdl.handle.net/10986/43438

13. Lyons, A. C., & Kass-Hanna, J. (2021). A methodological overview to defining and measuring "digital" financial literacy. Financial Planning Review, 4(2), e1113.

14. Norris, A., & Sharma, A. (2026, March 10). The power of payments: What's driving women's financial inclusion. World Bank Blogs: Let's Talk Development.

15. OECD. (2023). OECD/INFE 2023 International Survey of Adult Financial Literacy (OECD Business and Finance Policy Papers). OECD Publishing. https://doi.org/10.1787/56003a32-en

16. Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. Science, 354(6317), 1288–1292.

17. World Bank. (2025, July 16). Mobile-phone technology powers saving surge in developing economies [Press release].