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The Cashless Economy and The Gender Gap Across Brics Economies

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ABSTRACT

This paper examines the link between the cashless financial ecosystem and the gender gap across the BRICS economies. In specific, the paper seeks to answer the question whether transitioning from a cash to a cashless economy has been beneficial for both men and women alike. Using a large-scale global data source, we find that while there has been a significant increase in the use of digital payments within the financial ecosystem over time, the effect is less pronounced for women than it is for men. Moreover, economic growth and development is positively correlated with lower gender gaps. The paper ends with providing policy recommendations towards an inclusive financial ecosystem for the future.

Keywords: financial, gender, digital, economy

1. INTRODUCTION

The transition to a cashless economy has been observed as a significant step in modern financial systems, especially in developing countries. This initiative aims to improve economic efficiency, decrease corruption, and increase transparency, making it an important area of study for policymakers and researchers. In India, digital transactions have surged following the 2016 demonetization and the COVID-19 pandemic. In fact, the total digital payment transactions in volume have increased from 8,839 crore in FY 2021-22 to 18,737 crore in FY 2023-24, growing at a compound annual growth rate (CAGR) of 46%. [1] The Unified Payment Interface (UPI) has led this growth, rising from 4,597 crore to 13,116 crore transactions at a CAGR of 69%.[2] According to the World Bank's 2021 Global Findex Database, 78% of Indian adults aged 15 and above held accounts with financial institutions or mobile money providers. In 2021, 77% of

[1] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2110407

[2] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2110407

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females in India owned a financial account. While this proportion is significantly better to a neighboring country like Bangladesh (30%), it is relatively lower compared to countries like Brazil(80%), China(88%) and Japan (98%). Therefore, India lags behind compared to certain other developing countries. The gender gap in account ownership has narrowed from 20 percentage points in 2011 to 6 percentage points in 2021, with 77% of women and 83% of men owning accounts. However, 32% of women's accounts are inactive compared to 23% in men. A 2022 Dalberg survey found only 38% of women were active digital financial users-regularly using digital payment methods like UPI, mobile wallets, or online banking- versus 65% of men. These gaps highlight ongoing structural barriers in access, literacy, and socio-cultural norms. Therefore, understanding this issue is crucial as India's cashless economy grows alongside persistent gender inequality.

In this paper, we critically examine whether the transition toward a cashless economy is unintentionally widening the gender gap in financial access and use. We explore how women's access to digital infrastructure, education, financial literacy, and formal financial tools impacts their ability to engage in a cashless system. Using data from the Global Findex database, we examine how the transition towards a digital financial economy has had varying effects on the gender gaps in use and access. We also study how this differs across different economies within the BRICS nation. Our central research question is: Has the drive towards a cashless economy narrowed or widened the gender gap.

The main result of our study shows that while the financial institutions have witnessed a digital transformation, there is still a massive gender gap in most indicators, including making digital payments. Second, with regard to receiving government payments, the gender gap is negative, indicating that access to digital payment infrastructure is there, but females are unable to meaningfully use them, compared to their male counterparts. Lastly, we find that macroeconomic indicators like economic growth (measured by GDP per capita), and government expenditure are positively associated with lowered gender gaps. The study is not without its limitations. Since we use secondary data sources from the World Bank Global Findex, we are limited with the indicators that the survey has measured. Moreover, the time period is sporadic, and not continuous due to the nature of the survey. Nonetheless, the global survey provides a comprehensive picture of the state of the digital transformation with regard to the integration of financial institutions with individuals across countries.

2. LITERATURE REVIEW

This section reviews the recent research around cashless payments, both from an Indian and global context. Darji and Pandey (2019) studied how the cashless economy is influencing women's financial inclusion in rural Gujarat, India. Using secondary data, policy documents, and

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literature review, they found that initiatives like Jandhan Aadhar Mobile (JAM) trinity, offline unified payments interface (UPI), and micro-automated teller machines (ATM) have expanded access to financial services. However, rural women still face major barriers such as low digital literacy, limited infrastructure, and lack of trust, indicating the need for targeted interventions and localised support systems. Kulkarni and Ghosh (2021) investigated the extent of gender disparity in digital financial services and its implications for women's autonomy in India. Using secondary data across states and a primary field survey in Maharashtra analyzed through logit and Ordinary Least Squares (OLS) regressions, they found significant gender gaps in mobile ownership and digital payment use. The study concluded that digital access boosts autonomy, but persistent structural barriers demand gender-sensitive financial inclusion policies. Chatterjee (2021) examined the status and progress of women's financial inclusion in Digital India, with a focus on digital access and persistent barriers. Using secondary data from Global Findex, Reserve Bank of India (RBI), and Prime Minister Jan Dhan Yojna (PMJDY) reports, the study tracked trends from 1990 to 2021. It found improved account ownership and reduced gender gaps but highlighted that digital and financial exclusion persists due to limited Information and Communication Technology (ICT) access, digital literacy, and gender norms. Antonijević, Ljumović, and Ivanović (2022) investigated whether statistically significant gender differences exist in global financial inclusion. Using Global Findex 2017 data for 144 countries and the Wilcoxon Signed-Ranks Test, they found consistent gaps across 7 indicators, with the largest in digital payments (6.87%) and account ownership (6.35%). These disparities are driven by legal barriers, literacy gaps, limited tech access, and cultural norms, underscoring the need for gender-sensitive financial strategies worldwide. Johnen and Mußhoff (2023) examined whether formal digital credit reduces the gender gap in financial inclusion over time and what explains gender differences in usage. Using FinAccess Surveys (2009–2018) and logistic regressions with controls, they found the gender gap in total formal credit use increased from 4.1% to 7.8%, mainly due to digital credit. Even in 2018, women were 2.2% less likely to use digital credit after controls. Gaps were linked to income, education, and mobile ownership, with no gap in semi-formal credit use.van der Cruijsen and Broekhoff (2024) investigated gender differences in payment behavior using a 2023 online survey of Dutch households. They found that men are significantly more likely to use credit cards and contactless payments and exhibit higher digital literacy. In contrast, women manage grocery payments more often but report lower fraud awareness and less comfort with digital methods. The study highlights the need for targeted digital literacy and fraud prevention programs to improve women's digital financial inclusion. Chandola (2025) examined how gender disparities in UPI adoption can be addressed to make digital finance more inclusive. Using survey summaries and a review of policy developments between 2019 and 2025, the author found that less than 30% of UPI users are women, indicating a major inclusion gap. The "UPI for Her" initiative was identified as a promising step toward

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narrowing this gap through targeted design, outreach, and digital literacy efforts aimed at women. Yadhav, Kumar, Mishra and Kochhar (2024) studied the perceived risks of cashless payments amongst female users. Through a primary survey of 444 respondents in India, the study found that financial and performance risks negatively impact users' satisfaction and trust, but privacy risk has no role among female users. On the contrary psychological risk is positively associated with female users' trust and satisfaction, and self-efficacy strengthens continuance usage intention. Dzogbenuku et al. (2021) conducted a primary survey on the digital payment usage across 2 rural districts in Ghana and found that males appeared to value ease of use rather than great customer experience, whereas females valued security over great customer experience.

3. DATA AND DESCRIPTIVE STATISTICS

For the purpose of our study, we use data from the Global Findex Database. The Global Findex Database is a global database that tracks financial inclusion indicators across the globe. The survey is conducted by the World Bank. The first round of the survey was conducted in the year 2011, followed by 2014, 2017, 2021, and the latest round being 2025. Since digital payments were not prevalent in 2011, we do not include the 2011 round in our study. The countries included in our study are: Brazil, Russia, India, China, and South Africa.

To measure digital usage of financial services we use the following variables: (a) credit card usage; (b) made a digital payment; (c) received digital payment; (d) received government payments digitally.

Credit Card Usage

Credit card usage among individuals aged 15+ saw notable changes between 2014 and 2024, but gender disparities largely persisted (Figure 1A and 1B). In 2014, Brazil displayed the most pronounced gap (men at 33.6%, women at 23.3%, gap of 10.3 percentage points), while Russia (16.8% men vs. 16.4% women) and China (14.8% vs. 12.2%) were more balanced. By 2024, China had reversed the gap with women (34.05%) slightly outpacing men (32.65%) -a unique and positive shift. Conversely, Brazil's gender gap widened further (men 46.8%, women 34.09%, gap of 12.71), marking a concerning regression. A particularly abnormal trend emerged in India, where overall usage declined from 3.3% in 2014 to just 2.13% in 2024, despite rapid growth in digital financial infrastructure. One reason for this could be the rise of the Unified Payment Interface (UPI). Russia's 2024 data is unavailable for gender analysis, but earlier trends show relatively low disparity. On average, the gender gap increased from approximately 3.9% in 2014 to 5.7% in 2024, suggesting that progress toward parity stalled. Only China demonstrated clear improvement, while Brazil regressed and India declined overall. **This indicator reflects a**

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failed attempt at bridging the gender gap, with worsening or stagnant trends in most countries.

Figure 1A: % of respondents using credit card (2014 and 2024)

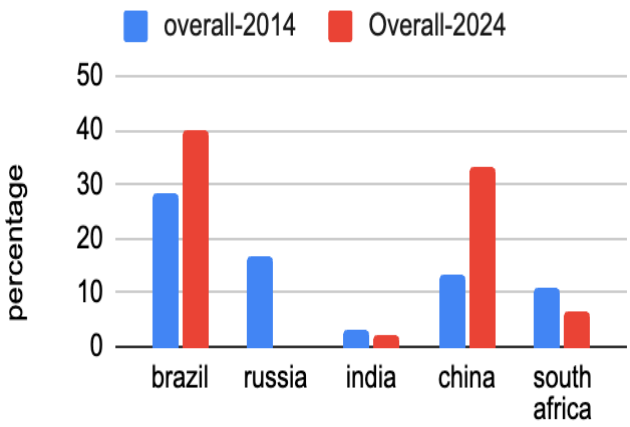
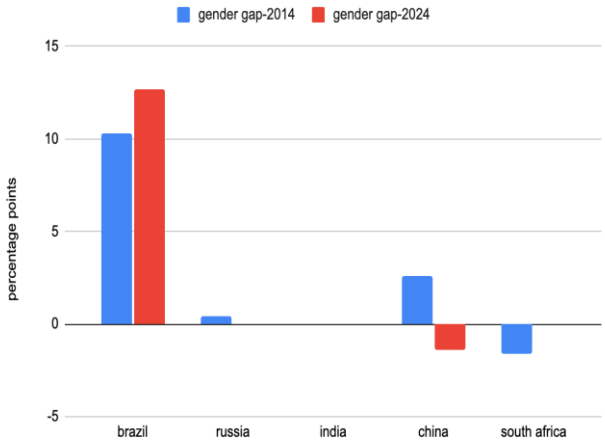


Figure 1B: Gender gap in credit card usage (2014 and 2024)



Source: Global Findex Database

From 2014 to 2024, global uptake of digital payments rose significantly, accompanied by modest improvements in gender inclusion (Figure 2A and 2B). In 2014, South Africa was among the few countries where more women (67.44%) than men (63.91%) received digital payments. India, however, showed a large gender gap of 15.79 percentage points, reflecting deeper structural exclusion. By 2024, China achieved near-universal adoption and gender parity—97.79% of women and 98.14% of men received digital payments. India also improved, narrowing the gap to 11.48%, while Brazil showed steady adoption with a consistent 9.5% gender divide. Surprisingly, South Africa, once a leader in female inclusion, saw a sharp decline among women—from 82.14% in 2021 to 65.08% in 2024—suggesting setbacks possibly linked to digital access, economic instability, or policy shifts. On average, the global gender gap in this indicator declined from 4.7% in 2014 to 3.6% in 2024, indicating slow but uneven progress. **While digital payments have become more widespread, their gendered impact varies widely across countries, underscoring the need for sustained, equity-focused interventions.**

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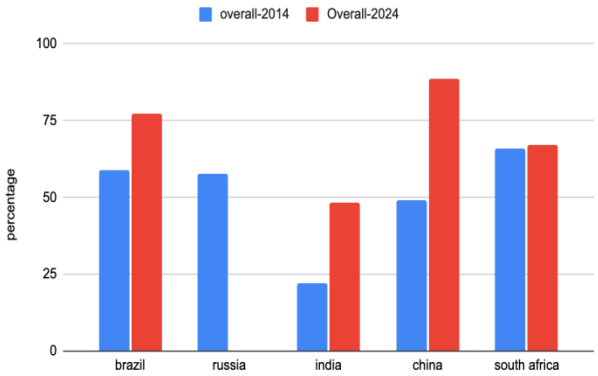
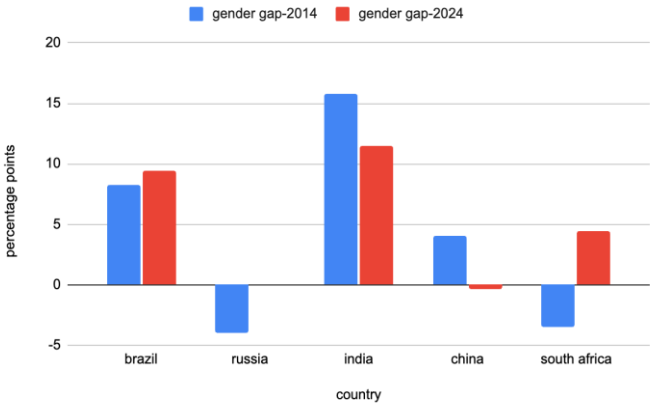
Figure 2A: % of individuals receiving digital payments (2014 and 2024)	Figure 2B: Gender Gap in receiving digital payments (2014 and 2024)
	

Made Digital Payments

With regard to making digital payments (% age 15+)" indicator reveals trends in gendered digital engagement and stark anomalies in inclusion (Figure 3A and 3B). In 2014, South Africa and Russia showed early signs of gender equity (South Africa: 52% men vs. 53% women; Russia: 44% vs. 45%), while India lagged behind with a 15-point gap (23% vs. 8%). By 2021, digital usage rose across all countries: Brazil (75% men vs. 65% women), China (84% for both genders), and South Africa (70% each). India improved but retained a persistent 18-point gap (33% vs. 15%). However, by 2024, an alarming reversal occurred in South Africa—female usage plummeted to 40% from 70% in 2021, while male usage dropped modestly to 50%, creating a sudden 10-point gender gap and a 30-point female regression. India's divide endured (38% men vs. 21% women), despite steady growth. China remained a model of parity at 84%, and Brazil maintained its consistent 9-point gap. The average gender gap across countries grew from 5.5% (2014) to 6.2% (2024), reflecting stagnation or backsliding rather than progress. The dramatic female declines in South Africa highlights how access alone does not ensure sustained digital inclusion. **These patterns reveal a troubling trend: despite infrastructure improvements, deep-rooted cultural, social, and economic barriers continue to marginalize women in digital financial ecosystems.**

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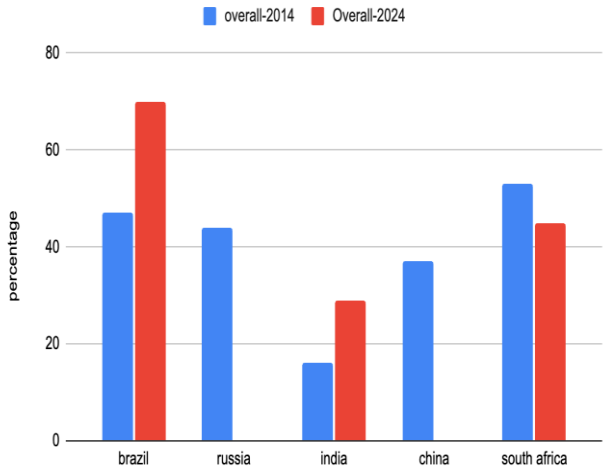
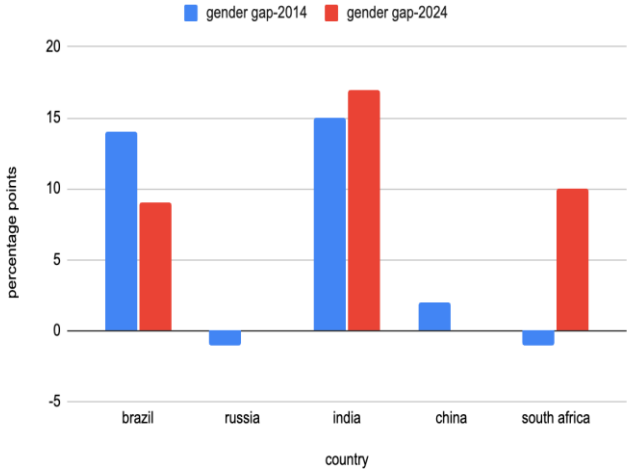
Figure 3A: % of individuals making digital payments (2014 and 2024)	Figure 3B: Gender Gap in the use of digital payments (2014 and 2024)
	

Source: Global Findex Database

Receiving government payments into a formal bank or financial account is a key sign of financial inclusion. In 2014, Brazil and South Africa already showed women receiving more payments than men, a positive sign. India lagged far behind, with just 4% overall uptake. By 2024, India improved significantly to 21%, with female participation rising to 23%, surpassing men (18%)—a strong abnormal increase highlighting success in schemes like Jan Dhan and DBT. Similarly, Brazil maintained its inclusion edge with more women than men benefiting from transfers (25% vs 23%). Russia showed an unexpected and sharp reversal: in 2024, women received 52% vs. men's 34%, a dramatic 18-point gender gap shift in favor of women, pointing to targeted welfare programs or demographic shifts (Figure 4A and 4B). South Africa sustained high inclusion, with women consistently ahead. The average gender gap rose from 2.9% to 5.1%, but this increase is largely due to women receiving more, unlike other indicators. Therefore, this trend is largely a qualified success, particularly in India and Russia, though China's stagnation and lack of disaggregated data limit conclusions. **The success here underscores the impact of intentional policy design aimed at reaching women directly through formal financial channels.**

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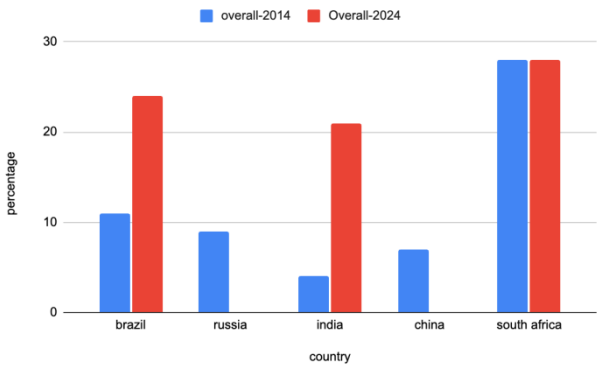
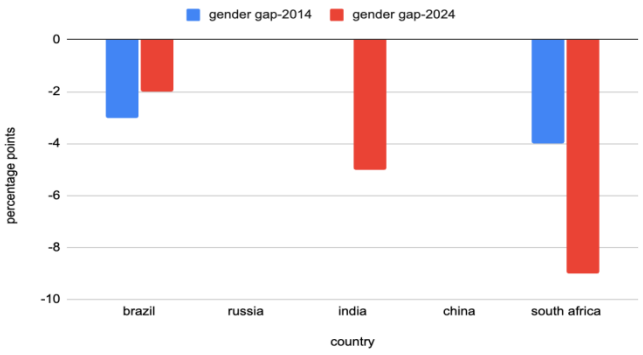
Figure 4A: % of individuals receiving government payments digitally (2014 and 2024)	**Figure 4B: % of individuals receiving government payments digitally (2014 and 2024)**
	

4. IMPACT OF MACROECONOMIC VARIABLES ON GENDER GAP

In this section, we study the factors that are associated with the gender gap in digital access and usage. We consider two factors, namely, the economic growth, measured by Gross Domestic Product (GDP), and the literacy rates. We plot a scatter plot to check the association between GDP Per capita and gender gap in digital payments, and literacy rates and gender gap in digital payments. For the gender gap in digital use and access, we consider the variable: gender gap in making digital payments as the main indicator.

Figure 5A illustrates the association between the gender gap in making digital payments and GDP per capita for the countries within our study and the time period included. We find a negative association between both the variables, which implies that as the gender per capita in PPP terms increases, the gender gap in digital payment usage declines. This indicates that developed countries have a far lesser gender gap in digital payment use compared to countries that are relatively lower in their income levels.

Figure 5B illustrates the association between the gender gap in digital payment with government expenditure (% of GDP). The premise behind this relationship is that economies with a higher government expenditure as a percentage of GDP should have higher development, leading to a more equal and inclusive society. Hence, countries with a higher government expenditure as a percentage of GDP should have lower gender gaps in digital payment usage. The data

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corroborates this premise, where a negative association between government expenditure (% of GDP) and gender gap in digital payment use is found indicating that economies where government expenditure as a proportion of GDP is higher, the gender gap in digital payment use is much smaller. Both these figures point to the fact that economic development is correlated with lower gender gap in digital payment use.

Figure 5A: Association between GDP per capita and gender gap in digital payment

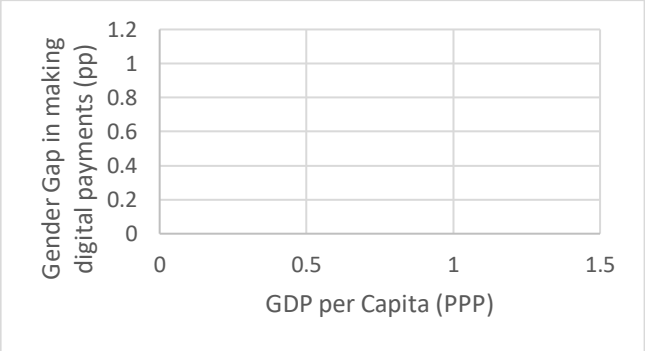
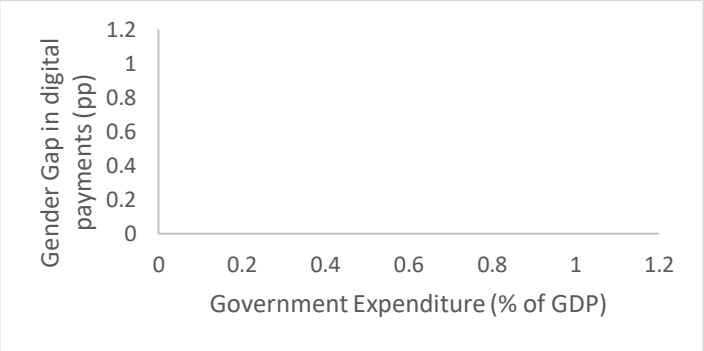


Figure 5B: % of individuals receiving government payments digitally (2014 and 2024)



Source: Author's computation from World Bank Database

5. CONCLUSION AND POLICY RECOMMENDATIONS

The purpose of this study was to examine the link between the transition from a cash-based economy to a cashless (digital) economy, and its effect on gender gaps in access and use. We find that while digital transformation has transformed the financial landscape across the BRICS economy, and countries have transitioned from cash to digital, there still remains to be a large gender gap looming. This indicates that the progress is not uniform across both men and women. Moreover, while women receive government benefits and transfers digitally, they are not able to leverage that effect for further use. Lastly, we find that both, economic development and high government expenditure have a positive effect on lowering the gender gap across countries.

The policy recommendations that emerge from this study is that policies and interventions should be designed to improve the gender gap and empower women with agency to use digital modes of financial payments. While access has been reached, actual use is still lacking. Hence, financial literacy programs tailored for women, providing certain features that can improve the uptake of women in using digital medium of payments, and providing risk literacy are factors that can improve the gender gap. Overall, policies should be designed to reduce risk, improve

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awareness, and lower the gender gap. This will have a multitude of positive effects on the economy. The policy recommendations that emerge from this study emphasize that interventions must move beyond access to actively fostering use, trust, and sustained engagement of women with digital financial services. While India has achieved near-universal access to bank accounts under the Pradhan Mantri Jan Dhan Yojana (PMJDY), women's active usage of these accounts remains significantly lower compared to men. Similarly, while platforms like UPI have democratized digital payments, adoption among women especially in rural areas lags behind due to social norms, digital illiteracy, and perceived risks.

To bridge this usage gap, three broad strands of policies can be prioritized:

1. **Strengthening Financial Literacy and Risk Awareness**

Financial literacy programs should be gender-sensitive, focusing on the distinct barriers women face, such as limited confidence in using mobile applications, fear of fraud, and lack of privacy in shared phone environments. Initiatives like the RBI's Financial Literacy Week and Digital Saksharta Abhiyan (DISHA) can be expanded with a stronger gender lens, incorporating modules on digital risk literacy (identifying scams, protecting PINs, managing credit). Tailoring workshops for women's self-help groups (SHGs) can also multiply outreach, given SHGs' proven success in community mobilization.

2. **Designing Inclusive Digital Products**

Payment interfaces and financial products should be designed with usability and trust-building features in mind. For example, simplified user interfaces, vernacular language options, biometric log-ins (reducing dependence on remembering PINs), and transaction alerts can encourage women's participation. Brazil's PIX system provides an illustrative case: it simplified onboarding by allowing payments using only a phone number or CPF (tax ID), lowering entry barriers for low-income users. Similar innovations could be localized for Indian women, especially those with lower literacy levels.

3. **Policy Support for Women-Led Ecosystems**

Public policy can actively incentivize women entrepreneurs and SHGs to transact digitally. Linking Direct Benefit Transfers (DBTs) to women's accounts has already shown promise in strengthening their control over finances. Expanding this approach, digital subsidies, low-cost credit, or insurance could be routed through digital channels in a way that reinforces women's agency. Programs like Mahila E-Haat (an online marketing platform for women entrepreneurs) could be integrated with UPI to ensure seamless payments.

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4. Leveraging Public-Private Partnerships (PPPs)

Collaboration between fintech firms, government, and civil society can foster a supportive ecosystem. Initiatives such as Google Pay Saathi, which trained rural women entrepreneurs to promote digital transactions, demonstrate the role of private actors. Policymaking should encourage more such PPPs to scale trust-based adoption models, where women learn from other women.

5. Regulatory Safeguards and Consumer Protection

Ensuring women feel secure in using digital platforms requires robust mechanisms for grievance redressal and fraud protection. The Ombudsman Scheme for Digital Transactions launched by RBI is a step in this direction but needs more accessibility and awareness among women users. Similarly, low-cost micro-insurance for digital fraud could mitigate perceived risks and encourage confidence in adoption.

In summary, while infrastructure has enabled access, the next wave of reforms must focus on creating trust, usability, and agency for women. By learning from global best practices, India can close the gender gap in digital financial inclusion, unlocking broader economic gains through higher female labor force participation, entrepreneurship, and household financial resilience.

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