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Impact of UPI on Women Entrepreneurship in India

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ABSTRACT

Women entrepreneurship in India has evolved as a critical driver of inclusive economic growth but still there is limited access to formal finance, digital infrastructure and market connectivity and this still continues to constraint the growth of women owned enterprises. The growth of United Payment Interface(UPI) revolutionized the digital payment landscape in India by making financial transaction more convenient, affordable and instant. This study explores the relationship between UPI growth and women entrepreneurship in India spanning over the period from financial year 2016-17 to financial year 2023-24. Women entrepreneurship is assessed based on the development of women entrepreneurship in the form of Micro, Small and Medium enterprises (MSMEs). The study uses a log linear regression model to look into relationship between the UPI growth and women entrepreneurship in India. The secondary data from different sources such as National Payment Corporation of India(NPCI), Udyam Portal by Ministry of MSME, Reserve Bank of India (RBI) etc. has been used in the study and the result show that the level of UPI growth is positively correlated with women on MSME .The study therefore finds UPI has not only become a payment innovation but it is also a crucial institution mechanism for inclusive entrepreneurship in India. The paper makes recommendation on digital financial literacy, women centric fintech conclusion QR code merchant expansion and integration of digital transaction history into formal credit assessment frameworks.

***Keywords**: UPI, Women Entrepreneurship, Financial Inclusion, MSMEs, Digital Payment, PMGEP.*

Introduction

The evolution of digital payment has radically transformed the financial landscape of developing countries especially those that want to achieve inclusive growth through technology. UPI is a digital payment platform introduced by NPCI in 2016 and has become one of the fastest growing digital payment systems in India. It has brought various changes to the retail payment landscape and financial inclusion by allowing low cost, instant, inter-operable and mobile based transaction. Many small businesses and informal businesses that have traditionally been cash-centric have benefitted from UPI's growth. Of these, women-owned businesses are an important part because of their significant role in employment creation, household income diversification and local economic development. Women entrepreneurs in India however suffer from various structural challenges such as limited collateral for loans, restricted mobility and reliance on informal financial institutions. Several of these barriers can be addressed together with digital payment systems like UPI. First, UPI helps reduce the cost of transactions without relying on costly payment point of sale infrastructure and cash handling. Second, digital transactions history recorded during UPI transactions can be used to collect financial information

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which can enhance access to formal credit for screams like MUDRA. Third, the use of QR code payments make paying more accessible and convenient for customers who own micro businesses and are women. In this backdrop, the present study examines if the unprecedented spike in the transactions of UPI has coincided with that of women entrepreneurs running MSME from FY 2016-17 to FY 2023- 24. Given the high exponential nature of the growth of UPI transaction, the study uses a log-linear regression approach to estimate the elasticity of UPI adoption to women entrepreneurship. The paper adds to the body of literature in different ways - first it offers latest empirical evidence linking digital payments and women entrepreneurship based on the national level secondary data. Second it uses log-log regression framework that is statistically suitable and third, it adds conclusions for financial inclusion and digital entrepreneurship of women in India

Literature Review

Digital payment system have emerged as an influential catalyst for financial inclusion because the reduce the cost, time and complexity of financial transaction while widening access to formal banking services for households and small enterprise(NPCI, 2024; RBI, 2024). In India the rapid spread of UPI has been especially transformative because it allows user to make and receive payment instantly such as smartphones or simple QR- based systems without requiring expensive payment infrastructure or extensive paper work. This has made digital transactions more accessible to groups that were historically excluded from formal finance including low income users, informal workers and women micro-entrepreneurs. At the same time, UPI generates digital transaction records that can serve as informal business histories, which is important in context where many small entrepreneurs lack collateral, audited accounts, or traditional credit histories (Dermirguc-Kunt et al., 2020; International Finance Corporation, 2018). The elements of UPI becomes even stronger when viewed through the lens of women entrepreneurship in India. Women entrepreneurs continue to face structural constraints such as limited control over financial resources, lower ownership of assets, reduced mobility, heavy household responsibilities and dependence on informal business arrangements (Chandrashekhar& Ghosh, 2018). Many women-owned enterprises operate from homes, local markets, or small service settings, where formal banking procedures, cash handling and physical branch visits can create additional barriers to growth. In such a setting, digital payment systems can reduce friction following women to accept payments, manage receipts and interact with customers without the need for costly equipment or repeated bank visits. UPI also matters for MSME development because it supports the gradual formalization and scaling of small enterprises. Despite these developments the academic literature still shows an important gap. While several study discusses digital payments, financial inclusion or women entrepreneurship separately, relatively few empirical studies directly investigate the relationship between UPI growth and women on MSMEs in India using econometric methods. Most existing work remains to descriptive, thematic or focused on general adoption patterns rather than estimating the magnitude of association between platform growth and women entrepreneurship growth. This create a strong need for quantitative research that uses secondary national data and formal regression technique to examine whether the expansion of UPI is significantly linked with a growth of women entrepreneurship and the present study addresses this gap by offering the same.

Research Methodology

This study adopted a quantitative, explanatory research design to examine the relationship between UPI transaction growth and woman entrepreneurship in India. The research was based on secondary time series data covering FY 2016-17 to FY 2023- 24, chosen because this period captures the full operational expansion of UPI and the corresponding growth in women-owned MSMEs. The objective was to estimate whether changes in UPI usage were associated with changes in women entrepreneurship while also testing the statistical suitability of the chosen model. The study used annual national level data from official sources. The study uses the number of women beneficiaries under the Prime Minister's Employment generation Programme (PMEGP) as a proxy indicator for women entrepreneurship in India because consistent annual data on women entrepreneurship or women-owned MSMEsfor the studied period is not available. The ministry of MSME's flagship self-employment and micro-enterprise promotion programme, PMGEP, benefits women starting or growing their own businesses

The core empirical model was a log log regression given below:

$LW_MSME=\alpha+\beta LUPI + \mu$

UPI Expansion and Women Entrepreneurship in India

- **Growth Trajectory of UPI in India**

In 2016 NPCI launched one of the most impactful digital payment innovations in the Indian financial landscape called UPI. It UPI is built to be interoperable and a real time payment system allowing operators or users to transfer funds instantly from one bank account to another with their mobile devices, eliminating the hassle and making money more accessible. In a comparatively brief span of time UPI has transformed from being an obscure digital payment service into the primary means of money transfer for retail digital payment in India.

Table 1: Growth of UPI Transaction in Volume

Year	volume(million)
2016-2017	17.86
2017-2018	904.87
2018-2019	5391.52
2019-2020	12518.61
2020-2021	22330.65
2021-2022	45967.53
2022-2023	83751.14
2023-2024	131164.7

Data Source: https://www.npci.org.in

As seen in table 1 above, the volume of transactions has grown by more than 1,000 times between 2016-17 to 2023-24; from 17.86 million it rose to 131164 million in 2023-24. This rise can be attributed to increase in smartphone numbers, low- cost internet bandwidth availability, accelerated merchant digitization, government initiatives promoting cashless transactions and post pandemic shift in customer's preferences towards digital payment modes. In the pandemic era, contactless transactions were more favored by consumers and businesses, which greatly grew the digital payment ecosystem both inn urban and semi-urban, QR-code merchant payments further made it possible for small merchants and micro-businesses to accept digital payments without needing to purchase expensive point-of-sale hardware. This network effect driven growth solidified UPI's status as a cornerstone of India's digital economy.

- **Growth of Women Owned MSMEs in India**

Women entrepreneurs lead MSME's which is an integral part of India's entrepreneurial ecosystem and place a significant role in employment generation of household income, local production and inclusive economic development. Women entrepreneurs in India are mostly found in low capital and service industries like handicrafts, beauty parlors, home base retailing, small trading and food processing. Women entrepreneurs are the backbone of the economy, but they still encounter structural challenges such as less access to formal credit, insufficient collaterals, lower digital literacy and reliance on cash based payments. To study the growth of women owned MSMEs in India the rise in the number of women beneficiaries under PMEGP has been used as as a proxy indicator because of lack of consistent annual data on women-owned MSMEs.

Table 2: Women Beneficiaries under PMEGP

Financial Year	Women Beneficiaries under PMEGP
2016–17	**14,768**
2017–18	**15,669**
2018–19	**25,434**
2019–20	**24,720**
2020–21	**27,285**
2021–22	**39,156**
2022–23	**32,626**
2023–24	**36,806**

Data Source: https://dataful.in/

The number of female PMEGP recipients rose from 14,768 in financial year 2016-17 to 36,806 in financial year 2023-24, representing a growth of around what 149.2% during the study period. Despite significant variations overtime, Table 2 shows a generally increasing trend in women's participation in

government sponsored entrepreneurial programs, pointing to rise in women led MSME's in the country. Despite the economic difficulties brought on by the COVID-19 pandemic, women entrepreneurs were resilient as shown by the robust recovery that followed a brief fall in financial year 2019-20. The increase in beneficiaries following the epidemic points to better access to support systems and business opportunities. This increase may have been aided by the quick development of digital payment infrastructure especially UPI which made financial transaction simpler, decreased the need for cash and improved access to official credit and government programs

- **Association between UPI and Women Entrepreneurship**

The patterns of the change in adoption of UPI and women owned MSME activities over the study period showed robust parallel upward trends as shown in table 1 and table 2. The growth pattern of UPI transaction is exponential while women entrepreneurs of MSME show relatively moderate but continuous growth. UPI development is an economically important phenomenon for women entrepreneurs because of the following reasons: Firstly digital payments not only decrease the need for cash transactions but also lower transaction cost. Secondly, UPI transaction histories can generate digital financial records which can enhance access to formal credit provision for schemes like MUDRA or fintech-based credit provision systems. Thirdly, QR code payment systems allows small businesses to engage in digital transactions without incurring high cost for payment infrastructure.

Data Analysis and Findings

The log-log regression technique has been used to study the association of women MSMEs and UPI transactions. The following regression model has been used for the same:

$LW_MSME=\alpha+\beta LUPI + \mu$

where LW_MSME = Women-owned MSMEs (log values); LUPI = total UPI transaction volume (log values); α = Constant; and μ = error term.

Table 3: Impact of UPI on Women Entrepreneurship (PMEGP Beneficiaries)

- **Regression Results**

Variables	Coefficients	t-value	p-value
Constant	9.133	48.56	<0.001
LUPI	0.114	5.66	0.001

- **Model Statistics**

Statistics	*Value*
R Square	0.842439831
Adjusted R Square	0.816179802
F -statistics	32.08
Significance F	0.0013
Observations	8

Table 3 above represents the results of the model examining the impact of UPI transactions on women entrepreneurship. The coefficient of L(UPI) is positive (i.e. 0.114) ans statistically significant at the 1% level ($p<0.01$), indicating that a 1% increase in UPI transactions is associated with 0.114% increase in women beneficiaries under PMEGP. The model explains 84.2%of the variation in women entrepreneurship ($R^2= 0.842$), suggesting a strong association between digital payment adoption and entrepreneurial participation among women. The statistically significant F-statistics further confirms the overall explanatory power of the model.

The result of the study indicates that UPI has positively influenced the women entrepreneurship in India due to its speedy growth. Digital payment systems eliminate the need for cash based transactions, enhance transaction efficiency, and generate electronic financial records that could enable access to formal credit. Such advantages are very significant for women entrepreneurs in informal and low capital enterprises. The findings are also in line with the overall digital financial inclusion literature, which holds that digital payment ecosystems can help to boost entrepreneurial inclusion by lowering financial and operational obstacles.

Conclusion and Policy Implications

The present study examines the relationship between UPI transaction growth and women entrepreneurship in India using a log-log regression framework based on secondary data. The findings reveal statistically significant positive association between UPI transaction volume and women owned MSMEs. The estimated elasticity coefficient indicates that the growth in digital payment adoption contributes positively to the expansion of women entrepreneurship in India. The regression results show that the digital payment infrastructure has a clear impact on the entrepreneurial participation of women, and has a strong explanatory power. It is to be noted that there is a need to complement the digital payment revolution with an increasing digital literacy, internet access, financial awareness and institutional support mechanism if a complete transformation of the entrepreneurial landscape is required.

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