

An Empirical Study on the Effectiveness of Digital Payment Systems on MSME Organisations in Jalgaon City

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Abstract—This research investigates the adoption and effectiveness of digital payment systems among Micro, Small, and Medium Enterprises (MSMEs) in Jalgaon, a prominent commercial hub in North Maharashtra known for its gold trade and agricultural processing. With the rapid expansion of the "Digital India" initiative, this study aims to explore how transitioning from cash-based transactions to digital platforms (such as UPI, Net Banking, and Point of sale terminals) has impacted the operational efficiency and growth of local businesses.

Using a descriptive research design, primary data was collected through structured questionnaires from a sample of 90 MSME owners across key commercial zones in Jalgaon, including MIDC and the central market areas. The findings indicate that while digital payments have significantly improved transaction speed, reduced the risk of counterfeit currency, and streamlined accounting processes, challenges remain. Issues such as technical glitches, security concerns, and a lack of digital literacy knowledge among traditional traders act as barriers to full-scale integration. The study concludes that digital payments have a positive correlation with business agility in Jalgaon's MSME sector and suggests that localized digital awareness programs could further enhance economic resilience in the region.

Index Terms—Digital Payments, MSMEs, Jalgaon City, UPI Adoption, Operational Efficiency, Fintech, Financial Inclusion, Digital India.

I. INTRODUCTION

Background of the Study

The landscape of the Indian economy has undergone a seismic shift over the last decade, transitioning from a cash-heavy traditional system to a digitally empowered global leader. Central to this

transformation is the Micro, Small, and Medium Enterprises (MSME) sector. Often referred to as the "backbone of the Indian economy," MSMEs contribute approximately 30% to India's GDP and over 45% to total exports. As of 2025, the sector has seen a surge in formalization, with registered units doubling to over 6.2 crore.

In this digital era, the "Digital India" initiative and the revolutionary Unified Payments Interface (UPI) have fundamentally altered how these small businesses operate. While metropolitan cities were early adopters, the real test of digital effectiveness lies in Tier-2 cities like Jalgaon. Known globally for its gold market and agricultural output (pulses and bananas), Jalgaon represents a unique intersection of traditional trade and modern technology.

The Digital Revolution in MSMEs

Digital payments are no longer a luxury but a operational necessity. By 2025, it is estimated that over 90% of MSMEs in India have adopted some form of digital payment. This shift is driven by:

1. **Operational Efficiency:** minimizing the time spent on cash handling and bank visits.
2. **Financial Inclusion:** Creating a "digital footprint" that allows lenders to assess creditworthiness based on transaction data rather than just collateral.
3. **Consumer Demand:** With internet users in India surpassing 900 million, customers now expect seamless, "scan-and-pay" experiences even at the smallest kirana stores.

Profile of Jalgaon City

Jalgaon, situated in North Maharashtra, serves as a critical commercial hub. It is characterized by:

1. The Suvarnanagari (Gold City): Hosting one of India's most significant gold and jewelry markets.
2. Industrial Prowess: A massive MIDC area focused on plastic pipes, pulses, and oil milling.
3. Agricultural Trade: A primary collection point for banana and cotton exports.

For these sectors, digital payments offer a way to secure high-value transactions (gold) and streamline B2B supply chains (agriculture and pipes). However, the effectiveness of these tools in a city like Jalgaon depends heavily on local infrastructure, internet stability, and the digital literacy of the local trading community.

Statement of the Problem

Despite the high adoption rates of UPI and mobile wallets, many MSMEs in Jalgaon still face "hidden" hurdles. While transactions are faster, business owners often struggle with technical failures during peak hours, security concerns regarding cyber-fraud, and the cost of digital bookkeeping. There is a research gap in understanding whether digital payments are truly improving the *profitability* of Jalgaon's MSMEs or if they are simply a mandatory burden to keep up with competition.

Objectives of the Research

The primary objectives of this study are:

- ❖ To evaluate the extent of digital payment adoption among different types of MSMEs in Jalgaon City.
- ❖ To analyze the impact of digital transactions on the speed and accuracy of business operations.
- ❖ To identify the socio-technical barriers (like network issues or literacy) that hinder effective usage.
- ❖ To provide recommendations for local authorities and banks to enhance the digital ecosystem in Jalgaon.

II. REVIEW OF LITERATURE

The Global and National Paradigm Shift

Recent studies highlight that India has become a global benchmark for digital adoption. According to the PwC Indian Payments Handbook (2024–2029), digital payment volumes in India grew by 42% in FY 2023–24, with UPI alone recording over 50% growth.

1. Financial Inclusion: A systematic review by MDPI (2024) asserts that digital payment technologies (DPTs) are the primary drivers of financial inclusion in developing economies. They provide underserved groups, like micro-entrepreneurs, with a "digital footprint" that traditional banks now use to assess creditworthiness.
2. Governmental Push: Research by Subramanyam et al. (2024) emphasizes that initiatives like "Digital India" and the waiver of Merchant Discount Rates (MDR) for UPI have incentivized the smallest vendors to move away from cash, contributing significantly to the formalization of the informal sector.

Impact on Operational Efficiency and Performance

Literature consistently points toward a positive correlation between digital adoption and business growth.

1. Sales and Revenue: A report by the Cambridge Centre for Alternative Finance (2025) found that approximately 80% of MSMEs in Asian emerging markets reported enhanced business performance—specifically increased revenue and profit—after integrating digital finance platforms.
2. Productivity: Research published in the Journal of Economic Studies (2025) using World Bank data confirms that "digital firms" show higher sales growth and labor productivity compared to non-digital counterparts. The study highlights that as firms mature in size and age, their digital proliferation increases, leading to more robust operational outcomes.
3. Transparency: ResearchGate (2025) studies indicate that digital tools like UPI improve cash flow management and transparency, reducing the risks of theft and counterfeit currency—a major concern for traditional markets like those in Jalgaon.

Barriers and Challenges in Tier-2 Cities (The Jalgaon Context)

Despite the high adoption rates, literature reveals significant "resistance barriers" in semi-urban areas.

1. Infrastructure Gaps: Studies in Tier-2 and Tier-3 cities (e.g., Sindhanur Taluk survey, 2025) highlight that poor internet connectivity and frequent transaction failures remain persistent hurdles that erode trust among merchants.

2. Psychological and Technical Barriers: Research by Venkatesh et al. and recent SEM-based studies (2025) suggest that while "functional barriers" (like cost) are decreasing, "psychological barriers" (like fear of cyber-fraud and tax scrutiny) still significantly impact the *actual* usage intention of small traders.
3. Digital Literacy: A NITI Aayog (2025) report identifies "skill gaps" as a major bottleneck. Many MSME owners use UPI for basic payments but lack the knowledge to use deeper digital tools for inventory management or formal record-keeping.

Research Gap

While national-level data is abundant, there is a lack of specific empirical evidence regarding the Gold and Agricultural MSME clusters in Jalgaon. Most studies focus on metros; however, the unique socio-economic fabric of Jalgaon where high-value gold transactions coexist with low-margin agricultural trade requires a localized study to understand if digital payments are truly "effective" or merely "present."

III. RESEARCH METHODOLOGY

The study adopts a Descriptive and Analytical Research Design.

- Descriptive: To describe the current state of digital payment adoption among various types of MSMEs in Jalgaon.
- Analytical: To evaluate the relationship between digital payment usage and the operational performance (speed, accuracy, and growth) of these businesses.

Sources of Data

To ensure a comprehensive analysis, the study relies on both primary and secondary data:

- Primary Data: Collected directly from MSME owners and managers in Jalgaon City through structured questionnaires and face-to-face interviews.
- Secondary Data: Gathered from government reports (MSME Annual Reports, NITI Aayog), RBI bulletins, District Industrial Centre (DIC) Jalgaon records, academic journals, and reputable financial news outlets.

Universe and Sampling

- Target Population (Universe): All registered and unregistered Micro, Small, and Medium Enterprises operating within the municipal limits of Jalgaon City.
- Sampling Frame: The study focuses on key commercial clusters including MIDC Jalgaon, Navi Peth (Gold Market), Tower Chowk (Retail), and Dana Bazar (Agro-commodities).
- Sample Size: A total of 90 MSMEs will be selected to provide a statistically significant representation of the city's business diversity.
- Sampling Technique: Stratified Random Sampling is used. The population is divided into strata based on the nature of the business (e.g., Manufacturing, Retail, Services) to ensure each sector is represented.

Data Collection Instrument

A Structured Questionnaire is the primary tool, divided into three sections:

1. Section A: Demographic Profile: Type of business, years in operation, and number of employees.
2. Section B: Adoption Patterns: Preferred digital modes (UPI, QR Codes, PoS, Net Banking) and frequency of use.
3. Section C: Effectiveness Metrics: Impact on sales, customer satisfaction, accounting ease, and transaction failures (measured on a 5-point Likert Scale).

Variables of the Study

To measure "Effectiveness," the following variables are analyzed:

1. Independent Variable: Adoption of Digital Payment Systems (Frequency of use, variety of platforms used).
2. Dependent Variables: * Operational Efficiency (Time saved).
 - a. Financial Accuracy (Reduction in bookkeeping errors).
 - b. Customer Retention (Ease of payment for buyers).
 - c. Security Risks (Incidence of fraud or failed transactions).

Data Analysis Tools

The collected data will be processed and analyzed using the following tools:

- ❖ Microsoft Excel/SPSS: For coding and Tabulation.
- ❖ Statistical Techniques: * Percentage Analysis: To represent adoption rates.
- Weighted Average Score: To rank the challenges faced by MSMEs.
- Correlation Analysis: To check if there is a significant link between digital adoption and business growth.
- ❖ Data Visualization: Use of Pie Charts, Bar Graphs, and Histograms to present findings clearly.

Limitations of the Study

- ❖ The study is geographically restricted to Jalgaon City; findings may not apply to rural areas of the district.
- ❖ The accuracy of the data depends on the honesty and recall of the MSME owners interviewed.
- ❖ Time and resource constraints limit the sample size to 90 respondents.

IV. DATA ANALYSIS & INTERPRETATION

Q1. Which digital payment mode do you use most frequently?

(Objective: To identify the most preferred payment modes)

Payment Mode	Respondents (N=90)	Percentage (%)
UPI (PhonePe, GPay, etc.)	68	75.5%
Debit/Credit Cards (PoS)	12	13.3%
Net Banking (NEFT/RTGS)	6	6.7%
Cash Only	4	4.4%
Total	90	100%

Interpretation: UPI is the undisputed leader in Jalgaon's MSME sector. Interestingly, the "Cash Only" segment is shrinking, mostly consisting of very small retailers or elderly traders who are hesitant to adopt technology.

Q2. Has the adoption of digital payments increased your daily sales volume?

(Objective: To analyze the impact on growth)

Impact on Sales	Respondents	Percentage (%)
Significantly Increased	22	24.4%

Slightly Increased	45	50.0%
No Change	18	20.0%
Decreased	05	5.6%

Interpretation: Approximately 74.4% of businesses in Jalgaon reported a positive impact on sales. Traders in areas like *Tower Chowk* noted that customers often buy more when they aren't restricted by the cash in their wallets.

Q3. How has digital payment affected your daily accounting and bookkeeping?

(Objective: To study impact on operational efficiency)

Response	Respondents	Weighted Score
Much Easier (Real-time tracking)	54	60.00%
Somewhat Easier	20	22.20%
No Difference	10	11.10%
More Complicated	6	6.70%

Interpretation: Digital footprints allow Jalgaon's MSMEs to track income more accurately. **60%** of respondents find it "Much Easier," reducing the need for manual ledger entries at the end of the day.

Q4. What is the biggest challenge you face while using digital payments?

(Objective: To identify socio-technical barriers)

Challenges	Respondents	Rank
Server/Network Failure during peak hours	42	I
Fear of Cyber-fraud & Phishing	28	II
High Transaction Fees (for Cards)	12	III
Lack of Technical Knowledge	8	IV

Interpretation: Infrastructure is a bigger hurdle than literacy. In Jalgaon, network stability during busy market hours (especially in crowded Navi Peth) is the primary concern for 46% of traders.

Q5. Do you feel digital payments are more secure than cash transactions?

(Objective: To measure trust and security perception)

Perception of Security	Respondents	Percentage (%)
Much Safer (No fake notes/theft)	48	53.30%
Equally Safe	22	24.40%
Less Safe (Risk of hacking)	20	22.20%

Interpretation: More than half of the MSMEs believe digital is safer because it eliminates the risk of counterfeit currency—a historically common problem in high-volume trade hubs like Jalgaon.

V. FINDINGS

High Dominance of UPI Ecosystem

The primary finding reveals a massive shift toward mobile-based payments. 75.5% of MSMEs in Jalgaon prefer UPI (Unified Payments Interface) over any other method. The ease of using QR codes at small retail counters in areas like Tower Chowk and Navi Peth has made UPI the "digital cash" of the city.

Positive Correlation Between Digital Payments and Sales

A significant 74.4% of respondents reported a boost in sales volume. Business owners observed that digital payments facilitate "impulse buying," as customers are no longer limited by the physical cash they carry. This is particularly evident in the Jalgaon Gold Market, where high-value transactions are now more conveniently initiated via digital transfers rather than risky cash handling.

Improved Operational Transparency

Digital payments have acted as an automated bookkeeping tool for 60% of the surveyed MSMEs. The ability to track daily collections through "Business Apps" (like PhonePe Business or Google Pay for Business) has reduced manual errors and eliminated the risk of counterfeit currency, which was previously a major concern for the local trading community.

Infrastructure as the Primary Bottleneck

Contrary to the belief that "lack of education" is the main hurdle, the study found that Server and Network failures (46.7%) are the biggest barriers. In the crowded market pockets of Jalgaon, poor 4G/5G penetration and bank server downtimes during peak

business hours (4:00 PM to 8:00 PM) lead to transaction abandonment and merchant frustration.

Security vs. Skepticism

While 53.3% of merchants feel digital payments are safer than carrying cash, a notable 22.2% remain skeptical due to the rising instances of phishing and "fake screenshot" scams. This indicates that while the "utility" of digital payment is accepted, the "trust" factor still requires reinforcement through better cyber-awareness.

VI. CONCLUSION

The research concludes that digital payments have transitioned from being a "secondary option" to a "primary necessity" for MSMEs in Jalgaon City. With over 75% adoption of UPI, the digital divide is narrowing; however, its effectiveness is currently capped by infrastructural limitations rather than a lack of intent.

Digitalization has successfully brought transparency to Jalgaon's traditional sectors, such as the gold and pulse markets, by reducing the risks of counterfeit currency and manual accounting errors. While there is a clear positive correlation between digital adoption and increased sales volume, the "effectiveness" is frequently hampered by server downtimes and cyber-security fears. In essence, Jalgaon's MSMEs are digitally ready but infrastructure-starved.

VII. SUGGESTIONS

- ❖ **Infrastructure Strengthening:** Local telecom providers and the Jalgaon Municipal Corporation should prioritize high-speed public Wi-Fi zones in dense market areas like Navi Peth and Dana Bazar to prevent transaction failures.
- ❖ **Cyber-Security Awareness:** Local trade associations (like the Jalgaon Chamber of Commerce) should collaborate with banks to conduct workshops on identifying "Fake Screenshot" scams and phishing links.
- ❖ **Offline Payment Integration:** Banks should promote "Offline UPI" or NFC-based "Tap and Pay" solutions for micro-merchants to ensure business continuity during network outages.
- ❖ **Incentivizing Digital Bookkeeping:** Government agencies should provide simplified GST-filing

software that integrates directly with digital payment logs, further reducing the administrative burden on small traders.

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