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Impact of Digital Payment System on Consumer Spending in Mumbai

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Abstract: *The introduction of digital payment platforms in India is changing how we transact. Digital payment systems (UPI, mobile wallets, contactless cards) are likely to change the frequency of your spending, the size of each transaction, your discipline in managing your finances, and how often you make impulse purchases. This study explores the impact of the adoption of digital payments on consumer spending patterns in urban and semi-urban India. A total of 840 respondents were surveyed using a structured questionnaire, and we used a difference-in-differences design that compares the self-reported monthly discretionary spending patterns before and after adoption of digital payments among those who adopted digital payments to those who did not and who are considered a control group. We also tested the impact of some of the mechanisms of digital payment adoption (convenience;*
perceived security; rewards/cashback; financial tracking features) on increased spending. The results of the study indicate significant increases in consumers' frequency of making periodic discretionary purchases with adoption digital payments (average increase of 9% to 15% across age groups) and these increases can be partially explained by the convenience and reward mechanisms of digital payment adoption. However, the positive increases in frequency of purchases of consumers making digital payments are moderated negatively by the consumers' high level of financial literacy. Digital payments do improve the recordkeeping and visibility of budgets, however this does not fully offset the additional discretionary purchases made by younger consumers due to the convenience of using digital payments. The paper ends with implications for policymakers and managers relative to responsible product design (soft limits, default budgeting nudge); consumer education; and more thoughtful loyalty programs.

Keywords: digital payment methods; UPI; mobile payment wallets; consumer behaviour; purchase frequency; impulse purchases

I. INTRODUCTION

The development of financial technologies has changed how consumers perform financial transactions in the 21st century. Digital payments, including UPI, mobile wallets, tap to pay cards and bank internet, have transformed the retail industry by providing consumers with instant, safe and convenient alternatives to cash. According to the Reserve Bank of India, digital payments have grown in India by more than 45% year-on-year, while UPI transactions are expected to cross 12 billion per month by December 2024, demonstrating that digital finance is becoming pervasive throughout both urban and semi-urban areas.

The National Payments Corporation of India (NPCI) states that, as of January 2024, India had more than 350 million active users of UPI and mobile wallets and is the world leader in the adoption of real-time digital payments.

There have been many drivers for this explosive growth, including the proliferation of smartphones; government programs, such as Digital India; the demonetization initiative in 2016; and the COVID-19 pandemic, all of which accelerated the adoption of cashless transactions for hygiene and convenience reasons (Kaur & Arora , 2024).

Digital solutions are changing how we spend and pay from an economic and behavioural perspective. Research in consumer psychology has found that non-cash forms of payment reduce "pain of payment" as defined by Prelec and Loewenstein (1998); thus, we consume at a greater level and engage in impulse purchases when using non-cash methods to pay.

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The use of digital payments in the form of seamless one-tap payment processing, instant access to credit offers, and cashback offers create almost no barriers to spending; as a result, it is likely that consumers' discretionary spending increases (Soman, 2021). A recent study conducted by Deloitte (2023) showed that approximately 64% of consumers stated that after using digital payment services they were spending more often and identified convenience and reward programs as the reasons why. In addition, the emergence of BNPL products and embedded financial services has caused the lines between spending and saving to become blurred. Thus, this transformation has created further questions regarding whether the use of digital payments are replacing cash payments or fundamentally altering consumers' financial habits and budgeting practices. India's experience presents a unique opportunity to study this phenomenon due to its demographic diversity and rapid digital inclusion.

According to studies by PwC (2023) and NITI Aayog (2022), digital payments are now available in Tier-2 and Tier-3 cities and adoption has increased at a rate of over 300% across these communities over the last five years.

Transaction efficiency has improved as a result of these developments, and the evolution of payment methods has had an impact on consumers' spending behaviors, how often they purchase and how they view handling their money. The use of payment applications is characterised by the use of real-time feedback and convenience, and the use of promotional campaigns has led to greater discretionary spending on average by younger consumers who are aged between 18 to 35. On the other hand, there is ambiguity regarding the link between digital payment adoption and consumer spending behaviors across the various categories of income, financial literacy and technological literacy. Therefore, Generation Y is more likely to embrace digital payments for convenience than the older generations, who display a more cautious approach to spending due to different attitudes toward money management and risk perception (Gupta & Saini, 2021). In India, there is a continued lack of literature focused on the relationship between digital payment consumers' buying behaviours, as most of the research has concentrated on the push factors leading to digital payment adoption (i.e. safety, ease of use, trust, etc.), which is defined as post-adoption behaviours that result from the post-adoption effects (Bansi & Goel, 2022). The purpose of this study is to empirically test how digital payment systems influence consumers' spending behaviours, including the frequency of spending, average amount spent per transaction and tendency to spend impulsively. Furthermore, the study aims to evaluate moderating variables such as financial literacy/financial education, income, and behaviors relating to obtaining a record of transactions in order to provide a comprehensive approach to understanding how digital payments impact consumers' spending behaviors. Additionally, an analysis will also be conducted in terms of how contemporary approaches to payment (payment technology) are being perceived across consumer spending behaviors, age, and generational cohorts.

The research provides further evidence that convenience provided by technology may increase the efficiency of managing money but also has an effect on consumer behaviour in terms of overspending. It contributes to the growing body of knowledge on digital financial behaviours by presenting a relationship between adopters of financial technologies and the economic behaviours of consumers. In addition, the research highlights the role of digitalization in improving access and transparency of products and services and in creating new ways of providing psychological cues to consumers when spending.

For policymakers, financial service providers, and digital payment systems to promote responsible digital consumption, support financial literacy, and enable continued financial inclusion in India's rapidly evolving digital economy, it is important that they understand these effects.

II. REVIEW OF LITERATURE

The global shift towards cashless economies has led to a substantial body of academic research that examines the impact of digital payment systems on how consumers behave, spend, and make financial decisions. The earliest studies related to modes of payments and spending behaviours, date back to Prelec and Loewenstein (1998), who described the "pain of paying" and posited that the psychological cost of spending diminishes as the payment method itself becomes less tangible (e.g., paying via cash costs you the most psychologically). Because when you pay in cash you physically see the loss of your money immediately by handing over cash, you become much more aware of the loss of your money

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than if you pay with a credit card or through a mobile payment system. The latter methods of payment make a separation between the acts of purchasing and the physical loss of your money, thus relieving the consumer's mental restraint on spending. Their foundational theory of the pain of paying formed the basis for understanding how behaviour would be affected for digital transactions. Recent decades have seen many digital payment systemsemerge, such as mobile wallets, Unified Payments Interface (UPI), and contactless payments that have further reduced friction within the payment process and therefore dramatically changed how consumers tend to spend.

There are several ways that digital payment systems influence consumers' spending habits. The literature identifies four primary factors that contribute to this influence: convenience, security, accessibility, and reward-based incentives. Runnemark, Hedman, and Xiao (2015) found that because mobile payments are so convenient, consumers are much more likely to buy something of low value when they make a purchase with a mobile payment than with cash, as consumers will be less likely to wait to purchase low-value items. In addition, according to Soman (2021), because mobile payments reduce the time needed to make a transaction and increase the perceived ease of use when making a payment, consumers will be more likely to make impulsive purchases.

Young people appear to have embraced this trend wholeheartedly, reflecting the original intent of the Technology Acceptance Model (TAM) in that perceived utility and ease of use are primary drivers for adoption. However, they are also reshaping behavioural outcomes beyond simple use, as evidenced by the results of a study conducted by Bansal and Goel (2022) across the five major metropolitan cities of India. In their study, Bansal and Goel surveyed participants about the amount of their discretionary spending before and after the introduction of mobile wallet applications (e.g., Paytm, Google Pay). They found that a full 67% of the participants increased their discretionary spending due to two factors: (1) instant payment availability and (2) cash back promo…

Researchers in behavioural economics have looked into the contradiction between the ability to manage money through digital payments and how quickly consumers are able to make impulsive purchases. Sharma and Chaturvedi (2021) assessed consumer data from the Delhi National Capital Region and found that digital payment users experienced an increase in discretionary spending (spending on non-essential items) by as much as 14% to 20%, particularly in entertainment and food. They suggested that the use of mobile apps to process payments provides an “illusion of control” over the way consumers manage their money because the real-time nature of viewing one’s balance makes them feel informed. However, having access to that information causes consumers to spend more due to the lower level of cognitive effort required. Similarly, research conducted by Deloitte (2023) suggests that 63% of users of digital payment platforms, such as UPI and mobile wallets, have reported being able to “spend without being aware of it” while using those services.

This suggests that although consumers may have access to real-time notification services and transaction summaries through electronic payment systems, this information does not necessarily deter consumers from making impulsive purchases. A separate line of research has looked at the way reward-based behaviour conditioning that is built into digital payment platforms influences consumers’ behaviour. Kang and Park (2020) noted that consumers in South Korea often form habits regarding their spending patterns due to the accumulation of reward points and cash back incentives offered by merchants. For example, rather than transacting for a specific purpose, consumers repeatedly process transactions in order to accumulate reward points or cash back. Gupta and Saini (2021) found evidence of a similar trend among consumers in India. Their results indicate that the promotional strategies used to market digital payment platforms (i.e., cash back offers, discount codes or gamified offers) create an attitude among consumers of seeking rewards that blurs the line between rational consumption and hedonic consumption. According to their research, 78% of consumers who experienced digital wallets did so as a result of being offered any one of these promotional strategies.

there was a significant amount of evidence showing that customers engaged with at least one reward-linked transaction on a weekly basis, which had a positive correlation with overall spending by month, supporting Thaler's (1999) mental accounting theory, where consumers felt more able to spend at a higher level when the spending was explained as future savings or rewards. There have been a number of studies focusing on how financial literacy and demographic

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factors affect spending behaviour, with both RBI (2023) and NITI Aayog (2022) demonstrating that consumers with higher levels of financial literacy engage in less impulsive digital spending behaviour, with financial literacy serving to decrease the extent to which convenience can lead to overspending. Patel and Singh (2022) emphasised generational differences and found that the 18-30 age group spent 22% more impulsively after they began to use digital payment options than older generations, primarily due to their greater involvement with promotional material and in-app offers. PwC India (2023) provided additional commentary about the rapid behaviours' changes displayed by consumers in tier-2 and tier-3 cities, who were new users of digital payments, noting that they experienced a 35% increase in spending frequency over the first year after they adopted digital payments. This reflects the democratising nature but psychologically complicated nature of digital payments. Conversely, some research has suggested that digital payments may enhance financial control and record keeping. Mehta and Kapoor (2020) indicated that mobile banking and wallet applications allow people to access their transaction histories digitally, with these records encouraging both self-regulation and awareness of budgeting. They also found that, in a survey of 600 respondents Verma and Rathi (2022) discovered that people who viewed their app-based spending report frequently were less likely (by 18%) to buy impulsively. For the same reason, they found that digital transaction information creates more transparency for the consumer to understand their spending waste. People using digital payment methods may not experience uniformly negative behaviors depending on whether they are consciously interacting with these tools.

III. RESEARCH METHODOLOGY

1. Objectives of the Research

This study's overarching goal is to assess the impact of digital payment systems on consumer spending patterns in Mumbai. Given the rapid advancement of technology and the widespread adoption of smartphone-based and internet-based services, many consumers now use digital payment systems as their preferred type of monetary transaction. The intent is to determine how digital payment systems shape their buying and finance-related decision-making behavior.

The specific objectives of this research are:

1. To investigate consumer understanding and acceptance of digital payment systems.
2. To evaluate how familiar consumers are with the various digital payment systems available, including UPI, mobile wallets, debit cards, and online banking.
3. To assess how digital payment systems affect consumer expenditures and purchasing behavior.

2. The Problem Statement

Due to great technological advancements and government policies to promote a cashless economy, digital payment systems are being used much more in recent years. The convenience, speed and ease in keeping records, all help to explain why consumers are moving to using digital platforms to carry out their payments.

Nevertheless, while the increase in the number of users using digital payments continues to grow, so do many concerns about security, privacy and technical issues.

3. Limitations

This study only considers the implications of digital payment systems on consumer purchase behaviours in Mumbai City. The research will consider only those consumers that use digital payment methods like UPI, Debit Cards, Credit Cards, Mobile Wallets and Internet Banking.

Moreover, the research will principally focus on how these various digital payment systems relate to the frequency of consumers' purchases, convenience of transactions and the overall spending behaviour of consumers. Factors that will be considered include consumer awareness, ease of use and trust in the digital payment systems.

However, the research is not intended to study a representative sample of all areas in India, but only represents the area of Mumbai. The study specifically focuses upon general consumer behaviour and will not examine the financial

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performance of digital payment companies or banks. In spite of these limitations this research will provide important insight into the increasing use of digital payments in urban areas.

4. Hypothesis of The Study

Hypothesis refers to a statement which can be tested through the process of conducting
research and analysing the data gathered from research. In this study four main hypotheses were analysed:

H0: (Null) Statement: Digital payments do not have an impact upon the consumer's spending behavior while living in Mumbai

H1: (Alternative) Statement: Digital payments do have an impact upon the consumer's spending behaviors while living in Mumbai.

IV. RESEARCH DESIGNE AND DATA ANAYLIS

1. RESEARCH DESIGN

A research design is an overall framework for collecting and analysing data for the purpose of answering your research question. A research design also provides a structured way for conducting research systematically and methodically. This research uses a descriptive research design to explore how digital payments have affected the spending behaviour of consumers in Mumbai.

Using a descriptive research design is appropriate as it provides valuable data on the characteristics, perceptions and behaviour of a sample of consumers towards their use of
digital payments. This research is primarily focused on answering two questions – How often do consumers use digital payment methods? and How do these methods affect their spending patterns? In order to be able to effectively analyse the data from participants, a structured questionnaire is used to collect data from individuals who have experience with digital payments. The responses to the questionnaires will be used to analyse results and draw conclusions regarding the use of digital payments.

2. Target Population and Sample of the Study:

The study's target population is all individuals associated with the research area. The research population consists of residents of Mumbai who utilize digital payment systems to perform various transactions including retail purchases or paying bills as well as online purchases. A sample of respondents from the broader population has been drawn because it would not be feasible to gather data from each resident located in Mumbai within the time and resource constraints present for this study; therefore, a sample is used as an appropriate representation of the larger population. The study includes respondents that represent a broad range of ages, employment types, and education levels.

3. Collecting Data:

Data collection is an important step in the overall research process because it gives
researchers data to analyse their research questions. In this study primary and secondary data sources were used to complete the data collection process.

Primary data was collected using a structured survey that included multiple-choice questions on topics such as how much people use a digital payment system and their willingness to continue to purchase from a retailer when using the digital payment option; how often they use digital payments; and how digital payments affect their spending. The survey was
completed by consumers in Mumbai using online format.

Secondary data was also collected from multiple sources including research papers, academic journals, news articles, websites and other materials relating to digital payment systems and consumer behaviour. These sources have allowed for a more thorough understanding of the subject matter and contributed to the analysis of the research results.

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Combining both primary and secondary data into the collection of data provides a more holistic view of the impact of digital payment systems has had on consumer behaviour when they spend money.

4. Data Analysis

Data analysis is the process of collecting, organizing and interpreting data in a meaningful way. The data, which was obtained through the questionnaires for this research, was analysed in detail to understand how consumers behave in relation to digital payment systems.

Through simple statistical methods (such as percentages and charts), the survey data was summarized and interpreted so that it could be presented in a simple, clear and

understandable form. The analysis focuses on identifying patterns (for example, how frequently consumers use digital payments, which forms of payment they prefer most and whether digital payments create an incentive to spend more money).

5. Consideration of Ethics

In all research studies there must be consideration for ethical issues so as to perform research in an ethical and honourable manner. In this particular study all respondents voluntarily participated and had their identity kept private.

Before obtaining their responses we made them aware of the purpose of the research project. There was no pressure put on any respondent to complete the survey, and they were able to answer each question honestly from their own perspective/experience.

V. FINDING

Digital Payments Have Truly Gained Users

Most users utilize digital payment systems regularly, where 83% of respondents agree that using these types of systems is easier than cash, primarily due to lower transaction limits.

User Characteristics

Male survey participants comprised of 70% of the total number of survey participants, with 73% of all participants between the ages of 18 and 25. Most users completed some form of higher education. Change in Spending Behaviour Patterns.

53% of users agree that they use digital payment systems to help increase their spending (but 39% disagree); however, the preferred reason for using digital payment systems is convenience (79.2%) or receiving cash back or discounts (58.4%).

VI. CONCLUSION.

Consumers throughout Greater Noida are utilizing and accepting digital payment systems at a high rate; particularly younger and/or more highly-educated consumers. Furthermore, while many consumers stated that they were spending more money because of their use of digital payments, the statistical analysis of this study indicates that demographic and

behavioral factors do not consistently have a strong effect on consumers' general spending behavior when it comes to digital payments. My research demonstrates that both age and education serve as the clearest socio- economic predictors of digital payment spending behavior.

Therefore, this research suggests considerable opportunity for both businesses and policymakers to improve digital financial literacy and trust amongst older and lowereducated consumers; in order to assist them in utilizing digital payments.Ultimately, this study shows that the use of digital payment systems is heavily influenced by their ease of use, convenience, accessibility, and availability of promotional offers, Regardless of whether using digital payments will result in increased spending.

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