Major Research Project on

Impact of Fintech Innovations on Middle-Income Group's Expenditure Patterns in Delhi-NCR

Submitted By

ABHISHEK GUPTA

2k23/BMBA/04

Under the Guidance of

Dr. Gaurav Vashisht

Visiting Faculty

DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road Delhi 110042

DELHI TECHNOLOGICAL UNIVERSITY

CERTIFICATE FROM THE INSTITUTION

This is to certify that Mr. Abhishek Gupta roll no. 2K23/BMBA/04 has submitted the major research project report Impact of Fintech Innovations on Middle-Income Group's Expenditure Patterns in Delhi-NCR in partial fulfilment of Master of Business Administration (Business Analytics) (MBA(BA)) program from Delhi School of Management, Delhi Technological University, New Delhi during the academic year 2023-25.

Signature of the Guide

Dr. Gaurav Vashisht

Visiting Faculty

DECLARATION

I, Abhishek Gupta, hereby, declare that the presented major research project report titled "Impact of Fintech Innovations on Middle-Income Group's Expenditure Patterns in Delhi-NCR" is uniquely prepared by me.

I also confirm that the report is only prepared for my academic requirement, not for any other purpose. It might not be used in the interest of any party.

…….

Abhishek Gupta

2K23/BMBA/04

MBA

Delhi School of Management,

Delhi Technological University

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EXECUTIVE SUMMARY

This research investigates how fintech innovations—particularly Unified Payments Interface (UPI), mobile wallets, and Buy Now Pay Later (BNPL) services—are influencing the expenditure behaviour of the middle-income population in the Delhi-NCR region. With India leading the world in fintech adoption, this study focuses on the urban middle-class demographic, a key driver of consumer spending and digital payment adoption.

The study adopted a mixed-methods approach, utilizing a structured survey administered to 105 respondents fitting the middle-income bracket (₹5–15 lakh annual household income). The majority were young, educated, and tech-savvy individuals, reflective of Delhi-NCR's fintech-adopting population. Data analysis was conducted using Microsoft Excel and SPSS, including descriptive statistics and chi-square tests to identify associations between fintech usage and changes in consumer behaviour.

Key Findings:

- Fintech Penetration: UPI and mobile wallets were used daily by over 70% of respondents. BNPL was used by ~63%, indicating rising comfort with fintech-based credit.
- Expenditure Patterns: 66.7% reported an increase in monthly expenditure after adopting fintech tools. Most of this was attributed to convenience and ease of use.
- Impulse Buying: 80.9% admitted to frequent or occasional impulse purchases post-fintech adoption, with heavy UPI users significantly more likely to make such purchases.
- Credit and Financial Strain: While BNPL was helpful for purchase flexibility, 13.3% reported missing a payment—raising concerns about financial overextension.
- User Perceptions: Respondents strongly valued convenience but also recognized that ease of digital payments sometimes led to overspending. Many appreciated fintech's ability to track expenses, suggesting potential for improved financial management.

Implications:

- For Consumers: Fintech improves access and convenience but can also encourage impulsive or excessive spending. Financial literacy and budgeting tools are critical.
- For Fintech Providers: Responsible innovation and clear disclosures—especially for BNPL products—are vital to prevent debt traps.
- For Policymakers: As digital payments become mainstream, consumer protection policies must evolve to address new risks while supporting financial inclusion.

This research contributes empirical insights into the behaviour al impact of fintech in a key urban Indian context. It highlights both the transformative potential and emerging challenges of fintech for the middle-income segment, offering a foundation for more targeted interventions, product designs, and policy frameworks.

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CHAPTER 1

INTRODUCTION

1.1 Background

Financial technology (fintech) innovations have rapidly transformed the way consumers transact and manage their finances in India. Over the past decade, India has emerged as one of the fastest growing fintech markets in the world, with an extremely high adoption rate of digital financial services.

As of 2019, India's fintech adoption rate was about 87%, among the highest globally and on par with China. Key fintech innovations such as the Unified Payments Interface (UPI), mobile digital wallets (e.g. Paytm, PhonePe), and Buy Now, Pay Later (BNPL) services have seen widespread uptake, revolutionizing payment habits and credit access for consumers.

(Figure 1.1, Source: The Economic Times)

(Figure 1.2, Source: Tata Capital)

(Figure 1.3, Source: News 18)

UPI, launched in 2016 by the National Payments Corporation of India, has become a transformational product in digital payments – by 2024, UPI was responsible for roughly 65% of all digital transaction volume in India (One-third of digital payments in 2024 are driven by credit use: Report | Finance News - Business Standard).

The growth has been explosive: annual UPI transactions surged from just 92 crores in FY2017-18 to 13,116 crore (131 billion) in FY2023-24 (Press Release: Press Information Bureau). This extraordinary expansion underscores the rise of fintech in India, driven by increasing smartphone penetration, affordable mobile data, and supportive government policies (such as the "Digital India" initiative). For example, Paytm – a prominent digital wallet – saw its user base nearly double from 140 million in late 2016 to 270 million by late 2017, illustrating how

policy shocks accelerated fintech adoption. This contextual background highlights the significance of the fintech revolution in India, which forms the backdrop for the present study.

Within India, the Delhi National Capital Region (Delhi-NCR) represents a unique and pertinent context to examine fintech's impact on consumer behaviour. Delhi-NCR is one of India's most urbanized and economically developed regions, with high literacy and technology usage rates, making it fertile ground for fintech penetration.

In fact, Delhi is classified among the top metro areas in India that exhibit high digital payment usage and strong retail potential, underscoring a vibrant synergy between digital payments and consumer spending. The region has a dense network of banks and fintech service providers, and consumers here were early adopters of services like UPI and mobile wallets. It is not uncommon now to see even small street vendors in Delhi-NCR accepting UPI payments via QR codes, reflecting fintech's deep penetration into daily commerce.

By 2025, digital payment modes (including UPI and wallets) have become mainstream in urban India: surveys indicate that across Indian cities, even street vendors receive ~46% of their payments digitally on average. Delhi-NCR, being a hub of commerce and home to a tech-savvy population, likely surpasses national averages on such metrics. Importantly, Delhi's socioeconomic profile features a substantial middle-class population – approximately 45% of Delhi's population is considered middle class (Delhi's middle-class voters weigh their options as polls inch closer | Delhi News - The Times of India), which is higher than the national average of around 31%. This sizeable middle-income segment in Delhi-NCR forms the core consumer base that fintech innovations target, making the region highly relevant for studying shifts in expenditure patterns.

The middle-income consumer group is particularly pertinent to examine in the context of fintech adoption and spending behaviour. Middle-income households (often defined in India as those with annual incomes roughly in the range of INR 5–15 lakhs) occupy an intermediate position in the economy – they have decent purchasing power and access to banking, yet they are cost-conscious and value convenience. This group has been a primary driver of digital payment growth in India. Studies show that aspiring and middle-class consumers enthusiastically adopt digital payments, with UPI accounting for about 35% of their transaction volume.

Unlike higher-income groups who may also rely on credit cards and net banking, middle-income consumers often find UPI and wallets more convenient for day-to-day payments. Moreover, middle-class consumers in India historically relied heavily on cash, but fintech solutions have begun to change that habit. The scope of this study is defined to investigate how these fintech innovations – specifically UPI, mobile wallets, and BNPL – are influencing the spending patterns of middle-income individuals in Delhi-NCR. "Expenditure patterns," refers to both how people spend (payment modes, credit vs. debit, frequency of transactions) and what/where they spend on (the mix of consumption categories, discretionary vs. essential spending, etc.), as mediated by fintech usage.

The significance of the study lies in understanding the behavioural and economic impacts of fintech on a crucial demographic segment. Middle-income consumers are often seen as the backbone of urban consumption.

If fintech innovations are causing noticeable changes in their spending behaviour – for instance, increased frequency of small-ticket purchases due to the ease of UPI, or higher discretionary spending driven by the availability of BNPL credit – this has implications for consumer welfare, financial planning, and retail business strategies. On one hand, fintech can enhance convenience, budgeting, and even financial inclusion for these consumers, especially for the middle class by providing easier access to payments and credit (Unravelling the Adoption Drivers of Fintech in India: An Empirical Analysis).

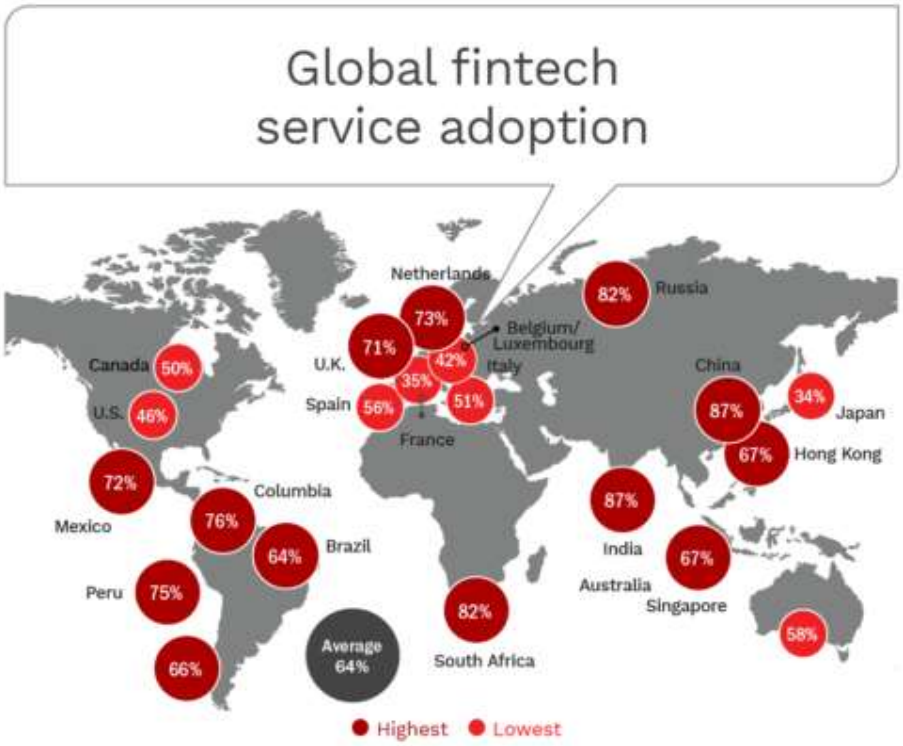
On the other hand, there is a need to examine potential downsides, such as whether frictionless payments lead to impulsive buying or over-expenditure. Behavioural economists suggest that digital payments reduce the "pain of paying" compared to cash, possibly encouraging people to spend more without immediate guilt or awareness (Spendception: The Psychological Impact of Digital Payments on Consumer Purchase Behaviour and Impulse Buying - PMC). BNPL services, while offering short-term affordability and convenience, might nudge consumers into purchasing beyond their means or accumulating hidden debt. These issues are highly relevant to India's middle class, which is currently experiencing rising aspirations and consumption needs alongside relatively limited social safety nets.

By focusing on Delhi-NCR's middle-income group, this research can shed light on real-world examples of fintech's impact – for instance, how a salaried individual's monthly budgeting might be altered by using UPI for daily expenses or how a family uses a BNPL plan to finance the purchase of a new appliance or a child's education fees. The findings can inform fintech companies, policymakers, and consumer advocates about the relevance of fintech to middle-income consumers, helping balance fintech innovation with consumer financial health. In summary, the introduction establishes the context of India's fintech boom, highlights Delhi-NCR's high fintech penetration and sizable middle-class, and underlines the importance of studying the impact of fintech innovations on middle-income expenditure patterns in this region.

1.2 Problem Statement

Despite India's globally leading fintech adoption rate—reaching 87% as of 2019—and the exponential growth of platforms like UPI and BNPL, there remains a critical research gap in understanding how these digital financial innovations are influencing consumer expenditure behaviour, especially within specific income groups and urban regions.

This study focuses on a key yet under-examined demographic: the urban middle-income segment in Delhi-NCR, a region with high digital penetration, a vibrant fintech ecosystem, and a significant proportion of India's consumption-driven middle class. While macroeconomic and policy-level studies have emphasized fintech's role in financial inclusion and digital empowerment, little empirical work has been done to assess whether these tools are merely replacing physical modes of transaction or are actively reshaping behavioural patterns—including spending frequency, budgeting discipline, impulse purchases, and credit reliance.



(Figure 1.4, Source: The Financial Brand)

The central research problem, therefore, is:

Are fintech innovations such as UPI, mobile wallets, and BNPL fundamentally altering the expenditure behaviour of Delhi-NCR's middle-income households? More specifically, do these digital tools encourage higher spending, facilitate impulsive consumption, and increase reliance on short-term credit—or do they promote budgeting, expense tracking, and financial control?

This inquiry is particularly urgent because the urban middle class, typically earning ₹5–15 lakhs annually, forms the backbone of India's consumption economy. A sustained shift in their spending habits—whether towards enhanced convenience or unregulated overspending—has far-reaching implications for economic stability, household financial health, and retail business strategy.

Furthermore, behavioural economics literature suggests that frictionless payment methods lower the "pain of paying," potentially leading to unconscious overspending. Tools like BNPL, while democratizing access to credit, might also mask the psychological barrier of debt, making individuals more vulnerable to overextension without realizing it.

This study seeks to address this gap by examining:

- Whether fintech use is correlated with higher expenditure and reduced financial inhibition.

- How digital ease influences impulsivity, credit usage, and the perception of affordability.
- To what extent fintech supports or undermines financial discipline in an urban, tech-savvy middle class.

By targeting Delhi-NCR's middle-income group—a population that is both digitally literate and economically aspirational—this research aims to generate evidence-based insights that are both regionally grounded and nationally relevant. These insights are vital not only for academic understanding but also for fintech product designers, policymakers, and consumer welfare advocates who must navigate the fine line between innovation and responsible usage.

1.3 Objectives of the study

In light of the above problem, the study aims to fulfil one primary objective and several specific secondary objectives. The primary objective of this research is:

- To examine and evaluate the impact of fintech innovations on the expenditure patterns of middle-income consumers in Delhi-NCR.

From this primary goal, several secondary objectives are derived that structure the investigation (with each objective linked to specific survey questions as indicated in the research design):

1. Fintech Adoption Profile**:** Assess the degree and frequency of usage of key fintech services (especially UPI, mobile wallets, and BNPL) among middle-income consumers. This establishes how deeply ingrained these innovations are in their daily financial activities.
2. Changes in Payment Behaviour**:** Analyze how the use of fintech has shifted consumers' payment habits – for instance, the extent of transition from cash to digital payments, and any changes in the frequency or manner of transactions (e.g. more small transactions due to ease of payment).
3. Expenditure Pattern Shifts**:** Determine what changes, if any, have occurred in overall spending levels and patterns since adopting fintech. This includes looking at whether users report spending more or less than before, whether impulse or unplanned purchases have increased, and changes in what they spend money on (such as more discretionary purchases).
4. Behaviour al and Attitudinal Factors**:** Explore consumers' perceptions, attitudes, and behaviour al tendencies related to fintech use – including trust in digital financial services, perceived benefits (such as convenience or rewards), risk perceptions, and satisfaction levels. This objective recognizes that psychological factors (like trust and sense of security) can mediate fintech's impact.
5. Financial Management and Well-being**:** Evaluate whether fintech usage correlates with any signs of financial strain or improved financial management among middle-income users. For example, does using digital payments and credit tools lead to budgeting challenges or debt (such as missed BNPL payments), or do fintech apps help users track expenses and manage money better?

6. Comparative and Contextual Analysis**:** Situate the findings in the broader context by comparing the observed trends in Delhi-NCR's middle class with known national patterns or other demographic groups. Through this, generate case insights or examples (from both India and abroad) illustrating fintech's impacts, to better interpret the results and suggest broader applicability.

Collectively, these objectives ensure a comprehensive examination of the issue – covering adoption levels, behaviour al changes, perceived pros/cons, and broader implications. Each objective is addressed through specific survey questions and analysis, as detailed in the methodology.

1.4 Scope of study

The scope of this study is confined to the middle-income population of the Delhi-NCR region and the fintech innovations most prevalent among this group in the mid-2020s.

- Population scope**:** Focus on middle-income individuals, operationally defined (for survey screening) as those belonging to households with annual income roughly in the ₹5–15 lakh range (which aligns with common definitions of urban middle class in India). Within this group, the study spans various age and occupation subsegments, though (as will be seen) the sample skews toward younger, well-educated respondents – a point noted as a limitation.
- Geographic scope**:** The research is delimited to Delhi-NCR, an urban metropolitan area; thus, findings reflect an urban context with high fintech penetration and may not directly generalize to rural or non-NCR areas.
- Fintech scope**:** The study specifically examines digital payment and credit tools – chiefly UPI, mobile wallets, and BNPL services – as these are among the most influential fintech innovations affecting consumer payments in India during the study period. Traditional banking services (like net banking or credit cards) are considered mainly for comparison, not as the primary focus.
- Behavioural scope**:** The outcomes of interest are expenditure-related behaviour s and perceptions. Self-reported changes in spending levels were examined, transaction frequency, impulse buying tendency, and related attitudes after adopting fintech. Broader economic outcomes (like long-term wealth accumulation or macroeconomic effects) are outside the scope; the emphasis is on individual consumer behaviour and short-to-medium term impacts.
- Time frame**:** The data capture consumers' experiences up to 2024–25, roughly representing the state of fintech impact post-demonetization and amidst the ongoing digital finance boom. The study is cross-sectional (a one-time survey capturing recent experiences), relying on respondents' recollection to compare "before" and "after" fintech adoption scenarios.

By maintaining these scope boundaries, the research hones in on a specific but significant issue: how fintech is shaping the financial lives of urban middle-class consumers in real time. The insights will be most directly applicable to similar urban settings and demographics in India. Understanding this scope is important, as the study does not attempt to cover all aspects of fintech or all populations – instead, it provides depth on a targeted intersection of technology

and consumer behaviour. The next sections provide a review of relevant literature (to ground the study in existing knowledge), followed by the research methodology, analysis of the findings, and conclusions and recommendations drawn from the results.

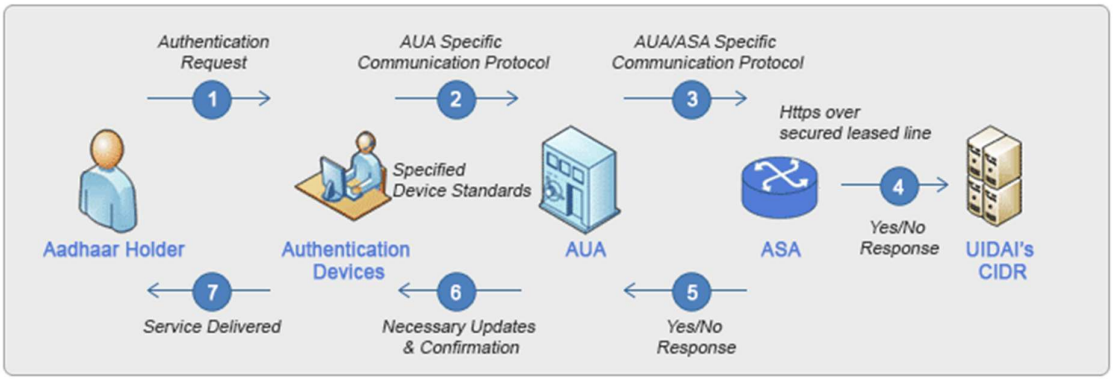
CHAPTER 2

LITERATURE REVIEW

2.1 Fintech Adoption Trends in India and Delhi-NCR

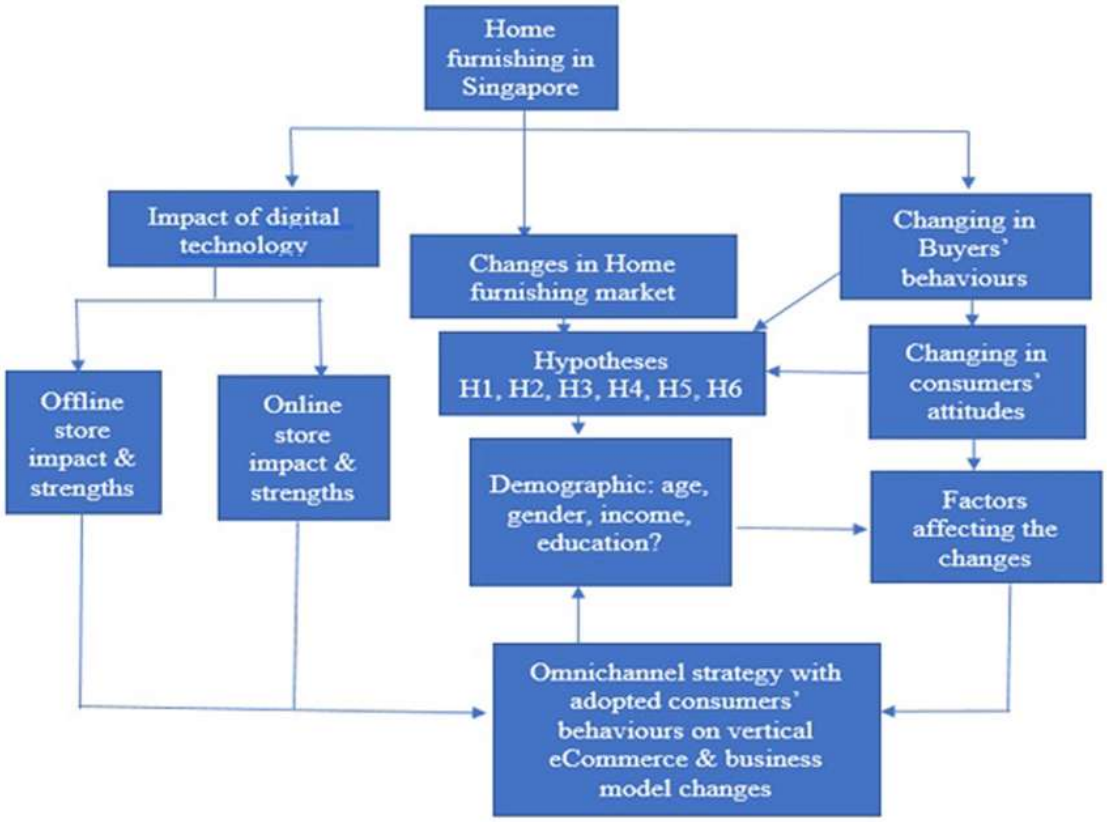
India's fintech landscape has been extensively studied due to its remarkable growth trajectory. The literature indicates that the country's push towards digital payments and financial innovation has fundamentally changed consumer behaviour, especially in urban areas.

Fintech adoption in India is driven by a confluence of factors: government initiatives (like Jan Dhan Yojana bank accounts, Aadhaar ID integration, UPI infrastructure), a burgeoning tech startup ecosystem, and the needs of a large young population comfortable with mobile technology. The EY Global FinTech Adoption Index (2019) highlighted that India was a top-tier market, with 87% fintech adoption among survey consumers (covering services like payments, savings, borrowing, etc.), making it a global leader in fintech usage. Such high adoption is corroborated by near-universal awareness of digital payment services – for example, 99.5% of Indian consumers were aware of fintech money transfer/payments services by 2019, a figure influenced by the government's post-2016 push to reduce cash in circulation.



(Figure 2.1, Source: UIDAI)

The introduction of Unified Payments Interface (UPI) in 2016 is frequently cited as a game-changer in the literature. UPI's simple, interoperable mobile interface lowered the barriers for person-to-person (P2P) and person-to-merchant (P2M) transactions. Academic and industry reports note the astronomical growth of UPI usage, which has effectively outpaced other payment methods in small-value transactions (One-third of digital payments in 2024 are driven by credit use: Report | Finance News - Business Standard). By 2024, UPI was recording over 16 billion transactions per month nationally (Interesting UPI Statistics You Need to Know in 2025 - A MageComp Edition) (Interesting UPI Statistics You Need to Know in 2025 - A MageComp Edition), and handling payments worth nearly ₹200 trillion annually (Press Release: Press Information Bureau) – a testament to its widespread penetration.



(Figure 2.2, Source: Research Gate)

In the Delhi-NCR context, specific studies and reports have observed that urban metros lead in fintech usage. Delhi-NCR, being among the top six metro areas, has high digital payment density. A recent study titled "How Urban India Pays" (2024) segmented consumers by income and city tiers, finding that metros like Delhi exhibit the highest Degree of Digital Payment Usage (DDPU), especially among higher-income and younger demographic groups. These consumers use digital payments for a significant share of both online and offline purchases, indicating an entrenched habit.

However, literature also points out the nuances: while affluent urban consumers use a mix of credit cards, UPI, and other fintech tools, middle-class users lean heavily on UPI and cash, with over half of middle/aspiring income respondents still preferring cash for some transactions. One survey found that aspiring and middle-class Indians use UPI for about 35% of their overall transactions – demonstrating enthusiasm for digital payments – but also that higher income groups tend to diversify into credit cards and other non-cash modes for larger payments. This suggests that fintech adoption is widespread among the middle class, though its usage may vary by transaction size and use-case. Notably, digital wallets (mobile wallet apps) played an early role in fintech uptake, especially around the demonetization period as mentioned. Case studies on Paytm and others document how wallets gained hundreds of millions of users by offering quick P2P transfers and merchant payments without needing card infrastructure (Demonetisation: How Paytm gained from note ban and why it used PM Modi's pic in ads). However, with UPI's rise, many wallets either integrated UPI or saw their usage patterns shift (for example, users might use the Paytm app to pay via UPI). Delhi-NCR's consumers are often

at the forefront of these trends, as evidenced by the prevalence of Paytm/PhonePe acceptance in local markets, public transport, and even small businesses in the region.

Another important fintech innovation in recent years is Buy Now, Pay Later (BNPL), which has grown as an alternative credit mechanism worldwide and in India. Literature and industry analysts note that BNPL services (offered by fintech firms or even by e-commerce platforms and banks) allow consumers to split purchases into interest-free instalments, thereby encouraging higher upfront spending. In India, BNPL is relatively new but rapidly gaining awareness.

According to a 2023 consumer payments survey, 87% of urban respondents were aware of BNPL services, though only about 34% had used them. This indicates high familiarity but moderate adoption, possibly reflecting caution or nascent availability. Interestingly, adoption of BNPL varies by income segment: studies show that affluent consumers lead BNPL usage (with roughly half of affluent respondents reporting using BNPL), closely followed by the upper-middle class, whereas the lower-income "aspiring" segment lags in both awareness and usage. Specifically, the aspiring segment had the highest proportion of consumers unaware of BNPL (18%), and even among those aware, over one-third were not keen to use it.

Middle-class users fall in between – generally aware of BNPL and some have started using it, especially for certain purchase types. BNPL's popularity in India is tied to the gap in formal credit: research highlights that credit card penetration in India is only around 3% of the population (approximately 25 million unique credit card users in a country of over 1.3 billion) (Demystifying the Indian BNPL market). For comparison, developed countries have 50–60% credit card penetration. This gap means many middle-income consumers who do not have a credit card see BNPL as a convenient way to access short-term credit for shopping (Demystifying the Indian BNPL market) (Demystifying the Indian BNPL market). It effectively democratizes consumer credit by allowing instant, low-cost instalment plans without a traditional loan or card.

In Delhi-NCR's retail scene (both online and offline), BNPL options have become common for electronics, fashion, travel bookings, and even education services. For example, e-commerce checkout often presents "Pay in 3 later" offers, and some educational institutions or healthcare providers partner with fintech to offer instalment payment plans.

The literature provides case studies of BNPL usage: one industry report noted that Indians are increasingly using EMIs and BNPL for big-ticket expenses like education fees, medical procedures, and electronics, reflecting a shift from outright purchase to "manageable, phased spending" (One-third of digital payments in 2024 are driven by credit use: Report | Finance News - Business Standard). This trend is especially evident during high-spend periods (festivals, admissions season), where short-term credit helps middle-class families manage cash flows (One-third of digital payments in 2024 are driven by credit use: Report | Finance News - Business Standard) (One-third of digital payments in 2024 are driven by credit use: Report | Finance News - Business Standard).

In summary, the adoption literature paints a picture of fintech becoming deeply ingrained in the financial lives of urban Indian middle classes. UPI and digital wallets have largely replaced cash for everyday small payments for many, while BNPL and digital credit are beginning to supplement traditional credit for larger purchases. However, adoption is not uniform across all

consumers – factors like income level, education, and trust in technology influence how quickly different groups embrace these tools. The middle-income segment generally shows a high uptake of payment fintech (UPI/wallets) and a growing but cautious engagement with credit fintech (BNPL).

2.2 Middle-Income Consumers and Changing Expenditure Patterns

The middle-income group in India, often colloquially referred to as the "middle class," has been the subject of many economic and sociological studies, given its rising prominence in driving consumption-led growth. Middle-income households in Delhi-NCR typically have moderate disposable incomes and spend on a mix of necessities (groceries, housing, utilities, education) and discretionary items (dining out, electronics, travel) as their incomes permit. The literature on expenditure patterns indicates that as this group's income has grown over the years, there has been a diversification in their spending – with higher proportions going towards education, healthcare, and lifestyle products, not just subsistence.

Fintech innovations potentially impact expenditure patterns in two main ways: by altering payment behaviour (how transactions are made) and by influencing purchase decisions (what and when to buy, given new payment options). Several studies in the domain of consumer economics have explored the effect of going "cashless" on spending. A robust finding from global research is that digital payments can encourage higher spending by reducing the friction of transactions.

- For instance, Agarwal et al. (2019) examined India's demonetization as a natural experiment and found that when consumers were forced into using digital payments, their monthly spending increased by about 3% on average, even after cash availability returned. The increase was primarily in purchasing more expensive products and was attributed to the "subdued salience" of digital payments – meaning that cashless transactions don't feel as tangible or painful as handing over cash.
- Another recent concept introduced in the literature is "Spendception," which describes the reduced psychological resistance to spending when using digital payment methods. Faraz and Anjum (2025) found that digital payments make purchases feel less noticeable, leading consumers to spend more and indulge in more impulse buying, compared to when using cash (Spendception: The Psychological Impact of Digital Payments on Consumer Purchase Behaviour and Impulse Buying - PMC).

These behavioural economics perspectives are highly relevant to middle-income consumers in Delhi-NCR. Many in this segment grew up in a cash-centric economy and are now navigating a digital payment world. The reduction in the "pain of paying" with UPI or wallet taps can lead a middle-class consumer to perhaps buy that extra cup of coffee or an impulsive online gadget, expenses they might have resisted if they only had cash at hand. Cumulatively, such small increases can shift expenditure patterns towards greater discretionary spending.

Another aspect of expenditure pattern change is budgeting and financial planning. With the advent of fintech, many middle-income individuals have started using personal finance apps, digital ledgers, or simply the history in their payment apps to track expenses. This could either

improve financial discipline (through better awareness of spending patterns) or, conversely, lead to loss of control if spending becomes too frictionless. The literature is somewhat mixed on this – some studies suggest fintech tools improve financial literacy and planning for users who actively engage with their expense data (The role of financial technology in enhancing fina.pdf), while others warn that ease of payments without equivalent evolution in financial education can result in overextension.

Focusing specifically on Buy Now, Pay Later (BNPL) and similar "instant credit" fintech products, the literature raises important points about consumer behaviour. BNPL essentially allows middle-income consumers to make purchases they might otherwise postpone due to insufficient current funds. This can smooth consumption – a beneficial effect allowing people to buy needed goods (like a smartphone or an appliance) immediately and pay overtime without hefty interest. In a developing economy context, one could argue BNPL is a tool for enhancing consumption and improving quality of life for the middle class by breaking big expenses into manageable chunks.

However, there are also cautionary findings. A study on BNPL users' perceptions found that many heavy users do not associate BNPL with the same level of financial caution as they would traditional loans or credit cards (Buy Now Pay Later – A Comparative Study About The Awareness, Perception And Factors Influencing The Usage Of BNPL As A Payment Option) (Buy Now Pay Later – A Comparative Study About The Awareness, Perception And Factors Influencing The Usage Of BNPL As A Payment Option). Because BNPL often comes with zero interest (if paid on time) and is marketed in a user-friendly manner, consumers may underestimate the fact that it is debt. In global cases, BNPL has been linked with rising consumer debt levels and over-borrowing for non-essential items.

For instance, a report highlighted how in Malaysia even fast-food chains offered BNPL for meals, leading to concerns of low-income groups financing daily essentials and falling into debt traps (Chicken burger on EMIs. Buy now, pay later signals a global debt crisis | World News - Business Standard). While that example is extreme, it underscores the risk of over-consumption and debt accumulation when credit is made too accessible.

In India, regulators (like the RBI) and researchers have noted the need to monitor BNPL's growth. A survey by an Indian journal observed that BNPL access can lead to increased chances of overdrafts and dipping into savings for users, especially those who lack financial discipline (Buy Now Pay Later – A Comparative Study About The Awareness, Perception And Factors Influencing The Usage Of BNPL As A Payment Option).

For middle-income consumers in Delhi-NCR, such effects might manifest as subtle shifts: using BNPL or credit for expenses like fashion, gadgets, or travel might free up immediate cash, potentially encouraging them to spend that cash on something else – effectively increasing total expenditure in the short term. On the other hand, if not managed carefully, the accumulation of multiple pay-later instalments (on different purchases) could strain monthly budgets and reduce future spending capacity (as more income goes towards paying past purchases).

Real-world examples and case studies help illustrate these phenomena. One case often cited is the seasonal spending pattern of middle-class families. During festive seasons (like Diwali in Delhi) or back-to-school periods, expenses spike.

Traditionally, families might save up or cut other spending to afford these bursts. But with fintech options, many now rely on short-term credit options – credit card EMIs or BNPL – to handle these spikes (One-third of digital payments in 2024 are driven by credit use: Report | Finance News - Business Standard). A fintech report in 2025 noted that in sectors like education and healthcare, there's increasing use of EMIs and BNPL, indicating consumers prefer to finance their spending rather than pay lump-sum, for items like school fees or medical bills (One-third of digital payments in 2024 are driven by credit use: Report | Finance News - Business Standard).

This shift suggests a normalization of credit use even among those who might have been debt-averse before; the middle class is increasingly comfortable carrying small debts as part of their expenditure planning, something earlier more common only in upper-income behaviour.

Another example is the change in merchant and retail practices. Small merchants in Delhi-NCR, from grocery shops to salons, have embraced digital payments, sometimes offering discounts for UPI payments or cashbacks through wallet apps. These incentives, often orchestrated by fintech companies, can influence consumer choices – for instance, a consumer might choose one supermarket over another because it offers a 5% cashback on a particular wallet. While such micro-economic decisions are small, they reflect how fintech is entwined with consumption behaviour.

A merchant survey found that 69% of transaction volume at surveyed Indian merchants was digital and even traditionally cash-based vendors are seeing nearly half of payments via digital modes. This ubiquity reduces any friction or extra effort in using digital money, thereby reinforcing the habit of spending via fintech channels whenever possible.

In summary, the literature indicates that fintech innovations are not only being adopted by middle-income consumers but are actively shaping their spending habits. Middle-class expenditure patterns in Delhi-NCR are likely experiencing:

(a) Greater convenience spending – quick, small transactions via UPI that might cumulatively increase discretionary purchases;

(b) Increased use of credit for consumption – through BNPL/EMI, changing the timing of purchases (buying now instead of later) and possibly the quantity (buying more because payment is spread out); and

(c) Changes in budgeting behaviour – with digital tools providing more data yet also new ways to overspend. Behavioural economics literature underpins many of these changes, highlighting psychological factors such as reduced transaction salience and instant gratification.

The net impact on middle-income consumers can be double-edged: fintech makes transactions more efficient and inclusive, aligning with findings that it significantly improves access for the middle class (Unravelling the Adoption Drivers of Fintech in India: An Empirical Analysis), but it also introduces new challenges in maintaining financial discipline. This blend of findings from academic studies, policy reports, and case observations provides a comprehensive backdrop for the present research. It underscores the need to empirically investigate in the Delhi-NCR context: how have UPI, digital wallets, and BNPL specifically influenced middle-income spending patterns? and are consumers experiencing positive convenience or negative financial stress (or both) as a result.

2.3 Behavioural Economics and User Attitudes Influencing Fintech Use

Adoption of fintech by consumers is not determined by availability alone; behavioural factors and user attitudes play a crucial role. The literature on technology adoption and behavioural finance offers insights into why middle-income individuals choose to use (or not use) fintech services, and how their perceptions influence usage intensity.

One critical factor repeatedly emphasized is trust. Trust in digital financial services determines whether people feel comfortable moving away from cash. Middle-income consumers, who often have some traditional banking experience, weigh the perceived security risks of fintech against its benefits. Studies have found that concerns about fraud, data security, and hidden fees can slow fintech adoption among otherwise receptive users. In the context of Delhi-NCR, where cybercrime incidents do get media attention, a portion of the middle-class remains cautious – for example, some might be willing to use UPI for small payments but not comfortable linking their main bank account to too many apps, or they might hesitate to use lesser-known BNPL apps due to fear of scams.

However, as fintech platforms mature and gain regulatory oversight, trust has been improving. Many fintech services in India are backed by banks or the government (e.g., the BHIM UPI app by NPCI), which has helped assuage fears. A survey of consumer preferences indicated that convenience, speed, and trust are the top drivers of digital payment adoption in India. Specifically, about half of respondents in one study cited trust in the platform as a key reason for choosing digital modes. Thus, fintech providers have worked to bolster trust by implementing security features (tokenization, two-factor authentication) and by branding – for instance, displaying logos of reputable banks on their interface to reassure users.

Another factor is perceived benefit vs. perceived risk. From a behavioural economics standpoint, a middle-income consumer will adopt fintech if the perceived utility (e.g., cashback rewards, ease of splitting bills, ability to buy on credit) outweighs perceived downsides (e.g., learning effort, security risk, potential overspending).

During the early days of UPI and wallets, companies offered hefty cashbacks for using their service, effectively conditioning consumers to try and then stick with these payment modes. Middle-income consumers, being value-conscious, responded strongly to these incentives – a trend noted in case studies of mobile wallet wars in India. Even in recent surveys, rewards rank high (around 49% for online purchases) as a factor for choosing digital payments. These promotions can temporarily distort spending patterns – e.g., people might spend more at a particular store or online sale because of an attractive BNPL zero-cost EMI offer or a wallet cashback, which in turn reinforces their usage of fintech platforms.

Social influence and peer effects also play a role. Fintech use in urban India often spreads through word-of-mouth. Literature on innovation diffusion suggests that as more people in a community adopt a technology, others feel encouraged to join due to network benefits. For a middle-income person, not using UPI when everyone else – friends, colleagues, merchants – is using it can become inconvenient. This network effect ensures that once a critical mass is reached, adoption becomes self-sustaining. Indeed, one can hardly function easily in Delhi's urban economy now without a mobile payment app, as even essentials like metro card recharges or utility bills can be done seamlessly through fintech apps.

The literature also delves into financial literacy and user education. Some middle-income users may not fully understand newer services like BNPL or the fine print of digital lending. Behavioural research has shown that lack of understanding can both deter usage and lead to problems for those who use without complete knowledge. For example, if a user doesn't grasp that missing a BNPL payment could incur fees or hurt their credit score, they might use it irresponsibly. Fintech firms and regulators have recognized this and there are increasing calls for clearer disclosure and customer education. The Reserve Bank of India (RBI) in its guidelines has emphasized that fintech credit products must transparently communicate costs to prevent user exploitation.

There is a strand of academic work focusing on consumer protection in fintech, noting that first-time digital credit users (often middle-class youth) might fall prey to debt cycles if proper guardrails aren't present (Buy Now Pay Later – A Comparative Study About The Awareness, Perception And Factors Influencing The Usage Of BNPL As A Payment Option).

In terms of comparative insights, looking at global contexts enriches the understanding of Delhi-NCR's scenario. In countries like Sweden or the UK, as cash usage dwindled, some observed that people lost track of their spending, leading to new financial management apps coming up to fill that gap. Similarly, as India moves towards a less-cash society, middle-income families may need to adopt new budgeting habits – possibly using expense tracker apps (some of which are integrated into payment apps).

The literature from developed economies also shows that credit-financed consumption (like BNPL) if unchecked can contribute to household debt issues, prompting regulators to tighten rules. For instance, the UK's FCA moved to regulate BNPL after observing its rapid growth among young consumers. India is likely following a similar trajectory, with RBI monitoring digital lending. These comparative cases serve as cautionary tales and learning opportunities for the Indian context.

Overall, the literature reviewed provides a multi-faceted understanding of fintech and middle-income expenditure behaviour. Key takeaways include:

Fintech adoption is high among middle-income urban Indians, thanks to UPI's ubiquity and the convenience and incentives offered by digital payments. Delhi-NCR exemplifies this trend with widespread usage of mobile payments in everyday life.

Expenditure patterns are shifting – there is evidence of increased overall spending facilitated by digital ease (lower psychological barriers), and a trend of financing consumption through new credit tools (EMIs/BNPL) (One-third of digital payments in 2024 are driven by credit use: Report | Finance News - Business Standard). Middle-income consumers are balancing new conveniences with the risk of overspending or debt.

Behavioural factors and attitudes like trust, perceived convenience, and reward incentives significantly influence usage. Fintech firms' ability to address security concerns and offer value (through rewards or better user experience) determines sustained adoption.

Case studies and examples from both India and abroad underscore the transformative impact fintech can have (e.g., demonetization case increasing digital spend) as well as the need for caution (e.g., BNPL contributing to debt in Malaysia (Chicken burger on EMIs? Buy now, pay later signals a global debt crisis | World News - Business Standard)).

There is a recognized need for consumer education and responsible innovation to ensure fintech benefits the middle class without leading to financial distress. This is a recurring theme in policy literature – maximizing fintech's inclusion benefits while minimizing potential harms.

This literature review establishes a foundation for the research by highlighting both the quantitative shifts (transaction volumes, adoption rates, spending increases) and qualitative aspects (behavioural perceptions, experiences) of fintech's impact on middle-income consumers. Building on these insights, the study will attempt to empirically measure and analyze these impacts in the specific context of Delhi-NCR and see how the theoretical expectations play out among the target population.

2.4 Identified Gaps and Contribution of the Current Study

Reviewing the above literature underscores a gap that the current study aims to fill. Prior research has richly documented *fintech adoption rates* and the *potential* of fintech to enhance inclusion or affect behaviour. India's urban middle class is among the leading adopters of fintech globally, and theoretically that this could lead to changes in spending (per behaviour al studies) or improved access to credit. Yet, there is a paucity of empirical research linking fintech usage to actual expenditure pattern changes in this demographic. Sharma (2024) examined assets and financial instrument use, but did not focus on expenditure or consumption outcomes. Desai (2022) dealt with MSMEs and identified barriers like low trust and usage, but her focus was not on household spending behaviour. Kulshrestha (2023) and similar works highlight macro-level benefits and challenges of fintech for inclusion, but again, they do not quantify how individual spending habits might shift for those who are already financially included (like the middle class). The *Spendception* study (Faraz & Anjum, 2025) is a notable exception that directly ties digital payments to spending increases, but it is a general study (not India-specific) and doesn't isolate middle-income effects.

The gap, therefore, is a context-specific, behaviour -focused analysis: how do middle-income consumers in a fintech-rich environment (Delhi-NCR) perceive and experience changes in their spending and financial behaviours? Our research contributes to filling this gap by providing survey-based evidence on questions such as: Do middle-class individuals think they spend more after adopting digital payments? Are they making more impulse purchases? How prevalent is the use of BNPL among them and are there signs of financial stress (e.g., missed payments)? Conversely, do they feel benefits like easier expense tracking or better access to credit for important purchases? By statistically analyzing these aspects, the study offers insights that bridge the domains of fintech adoption and consumer spending behaviour. Moreover, by focusing on a specific income group in a specific region, it generated nuanced understanding that broad national surveys or multi-country studies might miss. This can inform both industry stakeholders (fintech firms might learn how their products are influencing user behaviour, for better or worse) and policymakers (to balance fintech innovation with consumer protection for the middle class). In summary, this literature review establishes that while fintech's rise is well documented and its broad effects theorized, the real-world impact on middle-income expenditure patterns in Delhi-NCR is an open empirical question – one that this study addresses.

CHAPTER 3

RESEARCH METHODOLOGY

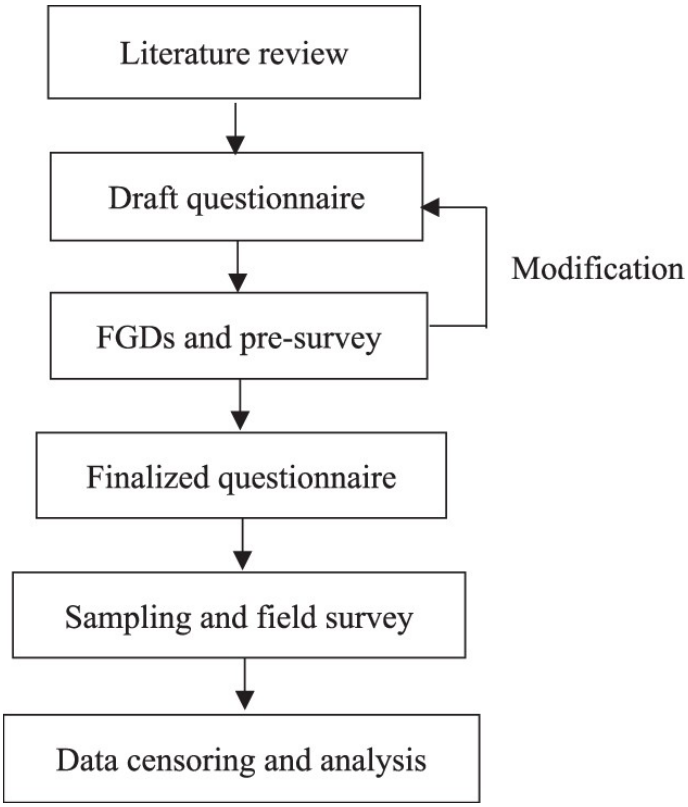
This chapter details the methodology adopted to achieve the research objectives. This outlines the research design, data collection methods, sampling strategy, and analysis techniques used. The methodology was initially based on a proposed plan and was refined as the study was implemented. In essence, the research uses a descriptive and exploratory approach with a quantitative survey at its core, supplemented by qualitative insights from open-ended responses. Key tools for analysis include Microsoft Excel (for data organization, descriptive statistics, and charts) and SPSS (for statistical tests, particularly chi-square tests, to examine associations in the data). The following sections describe each aspect in detail.

3.1 Research Design

The study employs a mixed-methods research design to comprehensively investigate fintech's impact on middle-income expenditure patterns. The primary component is quantitative – a structured questionnaire survey – aiming to capture measurable changes in spending behaviour and fintech usage frequency. This is complemented by a qualitative element in the form of open-ended survey questions, which allow respondents to elaborate on their experiences in their own words. A mixed-methods design is suitable here because the research question involves both quantifiable metrics (e.g., number of transactions, percentage change in spending) and subjective perceptions (e.g., feelings of convenience or instances of impulse buying) that enrich understanding beyond the numbers. The overall design is predominantly descriptive (documenting what changes or patterns are observed) and exploratory (probing into how fintech usage and spending might be related, without strong a priori hypotheses given the nascent state of research on this specific topic).

In practice, the study was cross-sectional – data were collected at one point in time (mid-2024) from respondents via the survey. The survey questionnaire was carefully structured to align with the research objectives: it included sections on fintech usage, changes in payment habits, spending pattern changes, and attitudinal statements (Likert-scale) about fintech's effects (see the Questionnaire in Appendix/Supporting Files for the full instrument). While primarily quantitative, the survey invited qualitative input through a few open-ended prompts (e.g., asking respondents to describe any notable experience where using digital payments affected their spending). This design allowed us to quantify general trends across the sample while also capturing anecdotes or explanations that provide context to those trends.

No experimental manipulation was done; instead, it relied on respondents' self-reported comparisons of their behaviour "before" and "after" adopting fintech. This is obviously subject to memory biases, but it offers a rough gauge of perceived change over time in the absence of longitudinal tracking. A longitudinal study (following the same individuals over time as they adopt fintech) would be ideal to establish causation, but given time and resource constraints, the cross-sectional approach with retrospective elements is the next best option to detect patterns of change.



(Figure: 3.1, Source: Research Gate)

3.2 Sampling and Target Population

The target population for the study was defined as middle-income consumers in Delhi-NCR who have used fintech services. For practical purposes, it focused on individuals likely to fall in the ₹5–15 lakh annual household income range (self-reported in the survey) and residing in the Delhi-NCR region. The sampling strategy was a mix of purposive and convenience sampling. This used purposive criteria to ensure inclusion of the target group – the survey introduction specified that the study is about fintech usage in Delhi-NCR's middle-income group, implicitly encouraging only relevant respondents to participate. Income range and location were confirmed via survey questions. Beyond that, the recruitment of respondents was largely convenience-based: the survey was distributed online (and a small number offline) through networks readily accessible to the researcher. This included social media groups, university contacts (as the researcher is an MBA candidate in Delhi, many respondents were drawn from a university community), and family/friend referrals within Delhi.

The final sample size achieved was N = 105 valid responses. There were a few responses discarded due to missing data or not meeting criteria (e.g., one or two respondents from outside NCR or with income above the middle-class band were excluded). While 105 is a modest sample, it provides a reasonable snapshot for exploratory analysis, though it is not a statistically representative sample of the entire Delhi-NCR middle class (this is acknowledged in the limitations). The sample's demographic makeup is discussed in the analysis section (4.1), but briefly, it skewed towards younger adults (the majority were under 30) and was relatively well-

educated (most had graduate or postgraduate degrees). This reflects the convenience sampling bias – many respondents were students or young professionals in the researcher's circle – and should be kept in mind when interpreting results.

3.3 Data Collection Procedure

Survey Instrument**:** Data were collected using a structured questionnaire (see *Questionnaire.docx*) administered primarily via Google Forms. The survey instrument was designed to cover all key themes linked to the objectives. It contained both multiple-choice questions and Likert-scale statements, organized as follows:

- Demographics**:** Age group, gender, occupation, annual household income bracket, and education level. (These established the respondent profile and allowed filtering for middle-income status.)
- Fintech Usage**:** Which fintech services are regularly used (multiple answers allowed: UPI, mobile wallets, BNPL, credit cards, expense tracking apps), and frequency of UPI use (e.g., multiple times a day, once a day, few times a week, etc.). A question on typical use cases for digital payments (e.g., grocery, peer transfers, online shopping, utilities) was included as a checkbox multiple-choice. These questions map to Secondary Objective 1 (adoption profile).
- Changes in Payment/Spending Behaviour: A question asking how average monthly expenditure has changed since using digital payments (options: Increased significantly, Increased slightly, No change, Decreased); a question on how the frequency of transactions has changed (options: "I make more small purchases now," "No major change," "I've become more cautious in spending"). These address Secondary Objective 2 and 3, capturing self-reported behaviour changes.
- Impulse and Credit Use**:** A question on how often the person makes impulse purchases since adopting UPI/wallets (Frequently / Sometimes / Rarely / Never), and a question on whether they have used BNPL/EMI to finance purchases (Yes – frequently / Occasionally / Once or twice / Never). A follow-up asked if they have ever missed a BNPL or EMI payment (Yes / No / Not applicable). These tie into Secondary Objective 3 and 5 (spending shifts and financial strain).
- Attitudinal Likert Grid**:** Several statements where respondents rate importance or agreement on a 1–5 scale. The statements were: *"Digital payments are more convenient than cash," "I feel I spend more now due to the ease of payments," "Cashback and rewards motivate me to use fintech more often," "I find it easier to track my spending due to digital apps," "Sometimes I lose track of my expenses because digital payments feel effortless."*. These statements were designed to probe perceived benefits and downsides of fintech (convenience, overspending, rewards influence, expense tracking, and spend awareness), directly addressing Secondary Objective 4 and providing nuanced insight for Secondary Objective 5. Respondents had to rate each from 1 (Not Important/Strongly Disagree) to 5 (Very Important/Strongly Agree), reflecting how true each statement was for them.

The questionnaire was reviewed by academic advisors for face validity and was pre-tested on a small group of 5 individuals to ensure clarity of wording and flow. Minor adjustments (like adding examples for UPI apps in question text, and clarifying that income was annual household) were made based on the pilot feedback.

Administration**:** The survey was distributed via a Google Forms link, primarily online. Participants were informed that the survey is for academic research, voluntary, and that their responses are anonymous and will be kept confidential (no personally identifying information was collected apart from broad demographics). The form was active for about 3 weeks. Additionally, to reach some respondents who might not be as active online, a few printed copies of the questionnaire were filled in person by the researcher approaching known contacts in Delhi (these were later entered into the Google Form for consolidation). The use of Google Forms automatically compiled the data into a spreadsheet (see *.xlsx*), which was then cleaned and analyzed.

Data Quality**:** Included a few simple attention checks implicitly (for instance, an income bracket had to be selected, and since the sample frame was mostly known to the researcher's network, there was little risk of random mischievous responses). The data was examined for consistency – e.g., if someone said, "Never used BNPL" then their answer to "missed a BNPL payment" should be "Not Applicable," which held true in all cases, indicating respondents understood and followed skip logic as intended. The anonymity of the survey was intended to encourage honest answers, especially for questions like spending change or missed payments, which some might feel embarrassed about. Given the candid responses (many admitted to increased spending or having missed payments), it provides reasonable confidence in the honesty of the data.

3.4 Data Analysis Techniques

After data collection, the responses were downloaded and processed in Microsoft Excel and IBM SPSS. The analysis proceeded along two main lines: descriptive statistics (to address the "what" of objectives) and inferential statistics (to explore associations/hypotheses about "how" fintech usage and spending outcomes might be related).

Descriptive Analysis**:** Using Excel, it calculated frequency distributions and percentages for all key survey questions. This provided a direct measure for each of the specific topics: e.g., what percent reported an increase in expenditure, how many use UPI daily, how many frequently impulse buy, etc. These results are presented in the Analysis section (4.3) with supporting tables or charts. Graphical representations were created for better visualization – such as pie charts for the proportion of respondents seeing increased vs. decreased spending, bar charts of the frequency of UPI usage, etc. Embedding these charts helps illustrate the findings. For example, a pie chart was made to show the breakdown of reported changes in monthly expenditure after adopting digital payments (significant increase / slight increase / no change / decreased), and another to show the distribution of impulse purchase frequency among respondents. Such visual aids complement the text by quickly conveying the magnitude of effects. Descriptive analysis directly answers many of the research questions (e.g., "What changes in spending do users report?" can be answered by the percentage reporting increases versus decreases).

Statistical Tests**:** To further investigate the relationship between fintech usage and expenditure changes (as hypothesized in the objectives), performed chi-square tests of independence using SPSS. Specifically, this tested two main hypotheses:

(1) Association between UPI usage frequency and change in monthly expenditure**.** The idea was to see if heavy users of UPI (multiple times a day) disproportionately reported increased spending compared to light users.

(2) Association between UPI usage frequency and impulse purchase frequency**.** This examines whether those who use UPI very frequently are more likely to report frequent impulse buying. These hypotheses stem from the expectation (from literature and common conjecture) that more frequent use of frictionless payments might lead to greater spending and impulse behaviour. It created contingency tables for these variables and ran chi-square tests. The results (chi-square statistic and p-value) are reported in section 4.3. This set a significance level of $\alpha = 0.05$ for hypothesis testing.

In SPSS, this coded the categorical responses (e.g., UPI usage frequency had categories "Never, Rarely, few times a week, Once a day, Multiple times a day"; spending change had "Decreased, No change, Increased slightly, Increased significantly"). For chi-square analysis, all categories were used as such. Given the sample size of 105, some cells had low expected counts (especially for "Never use UPI" – only 1 respondent – or "Decreased spending" – only about 12 respondents). This can limit chi-square test reliability, so results were interpreted with caution and Fisher's exact test was considered if needed. Nonetheless, the chi-square tests provide an indication of whether any observed differences are statistically significant or likely due to chance.

Qualitative Analysis**:** Although the survey was not primarily qualitative, it reviewed the open-ended comments provided by some respondents (there was an optional prompt at the end like "Please share any specific experiences or thoughts on how fintech has impacted your spending or saving habits"). About 30 respondents provided some comments. These were manually reviewed to extract common themes or illustrative anecdotes. This did not require a formal coded qualitative analysis given the limited scope, but these comments are used in the discussion to add depth. For instance, a few respondents described feeling more "in control" because apps keep a log of all expenses, whereas a few others mentioned how "one-click checkout" on shopping sites made it dangerously easy to buy things. Such insights are weaved into the interpretation of results.

Tools**:** In summary, Excel was used for cleaning data, computing percentages, and making charts; SPSS for chi-square tests and generating detailed cross-tabulation reports (an SPSS output file *.docx* was generated, showing observed vs. expected frequencies in each cell, and contributions to chi-square). Where appropriate, reference is made to that report for specific numbers. All analysis steps were done in accordance with the objectives mapping (e.g., results are structured to first describe adoption profile, then spending changes, etc., mirroring the objectives listed).

The methodology thus ensured that each research objective could be addressed: the survey questions were mapped to objectives, and the analysis plan (descriptive or inferential) was laid out accordingly. By expanding on the methodology from the initial proposal, it also stay transparent about how data was obtained and handled.

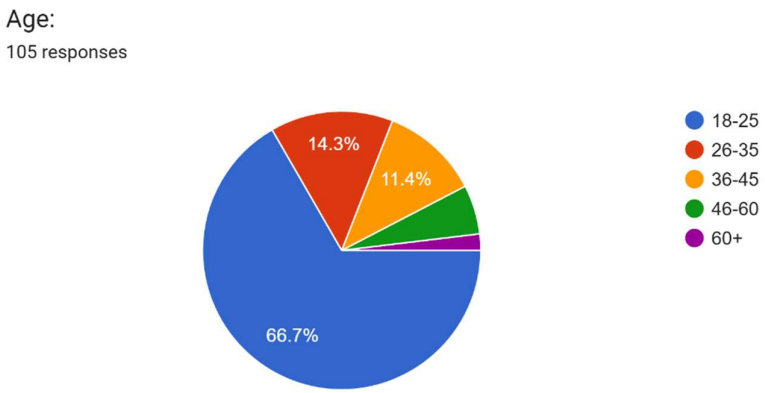
CHAPTER 4

ANALYSIS, DISCUSSION & RECOMMENDATIONS

4.1 Introduction to the Case (Sample Characteristics)

Before delving into the core findings on fintech and expenditure patterns, it is important to understand the profile of the survey respondents – the "case" population of the study. As noted, it gathered data from 105 middle-income individuals in Delhi-NCR. The demographic breakdown provides context for interpreting results and also illuminates who exactly the conclusions apply to.

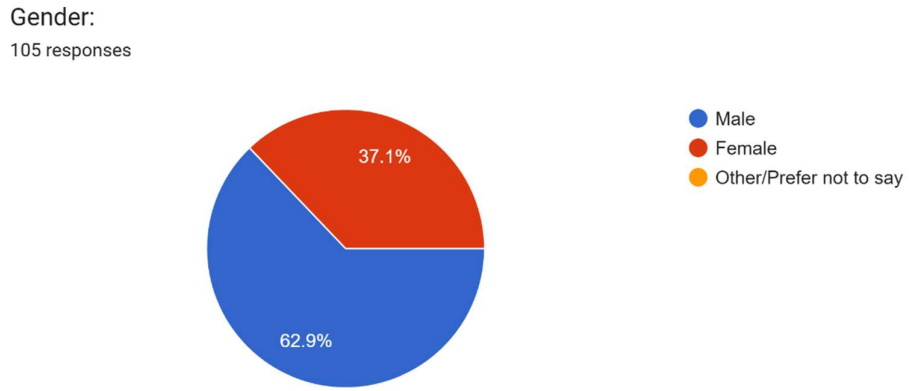
- Age Distribution**:** The sample was heavily skewed toward young adults. Two-thirds (66.7%) of respondents were in the 18–25 age group, with most of the remainder in the 26–35 bracket. Only a handful (under 5%) were above 35, and none above 45. This reflects that the survey reached a younger segment of the middle class. The implication is that our findings largely reflect the behaviours of younger, tech-savvy middle-income consumers. This bias must be kept in mind – older middle-class individuals might have different fintech usage patterns (or reluctance) not captured here. Nonetheless, the young demographic likely represents the early adopters and heavy users of fintech, making their behaviour an important "leading indicator" of broader trends. (It also means that findings about impulse spending etc. may be partly attributable to age as much as technology – something acknowledged in limitations.)



(Figure: 4.1, Source: Google Forms Survey)

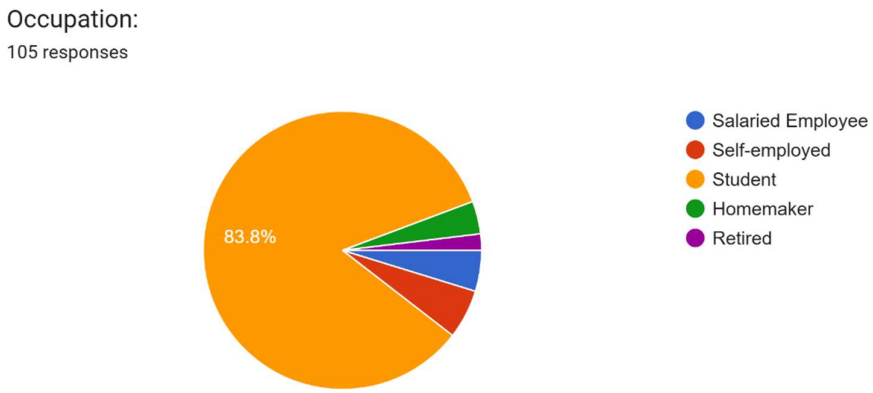
- Gender**:** The gender mix of respondents was moderately balanced, though with a male majority. About 62.9% identified as Male and 37.1% Female, with no respondent choosing "Other/Prefer not to say." While not a perfect parity, this female representation of ~37% is decent for an opportunistic sample, and it allows us to consider gender differences in a limited way if needed. Prior literature sometimes suggests women and men might differ in financial behaviour s or trust in technology (Spendception: The Psychological Impact of Digital Payments on Consumer Purchase Behaviour and Impulse Buying), but given the sample size, this did not primarily segment analyses by

gender. However, that any generalizations should consider that both genders are represented in the data, albeit men somewhat more so.



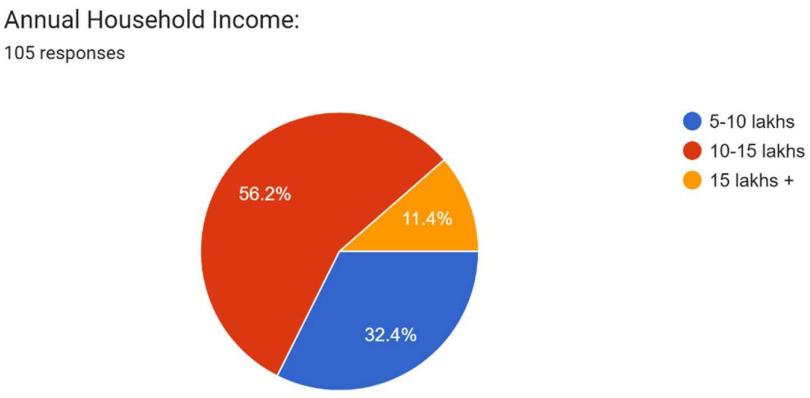
(Figure: 4.2, Source: Google Forms Survey)

- Occupation**:** A striking 83.8% of respondents indicated their occupation as "Student." The remaining were scattered among salaried employees (~10%), self-employed (~3%), with a couple of homemakers and retired persons. This occupational distribution is clearly not reflective of the entire middle-income population, but rather the subset of middle-income *households* where the respondent is a student (likely a college or postgraduate student from a middle-class family). In many cases, these students might not have full-time income of their own, but they belong to middle-income households (as evidenced by the income question). This has pros and cons: on one hand, students might have different spending habits than working professionals (potentially more digitally savvy, but also possibly spending parental money or having limited budgets). On the other hand, focusing on students captured at a university can effectively sample the "upcoming" middle class who have high exposure to fintech. The dominance of students in the sample again reflects the convenience sampling via an academic context. Thus, the "case" can be thought of primarily as middle-class youth in Delhi-NCR. The discussion and recommendations will take this into account.



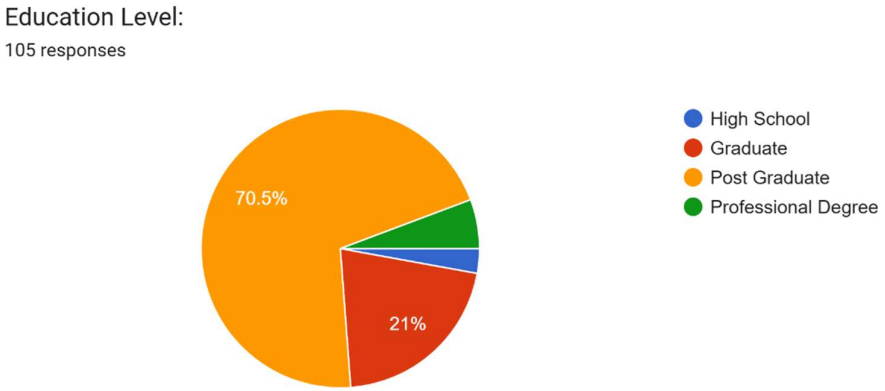
(Figure: 4.3, Source: Google Forms Survey)

- Household Income**:** By design, it targeted middle-income brackets. The annual household income distribution was: 56.2% in the ₹10–15 lakhs range, 32.4% in ₹5–10 lakhs, and the remaining 11.4% in ₹15 lakhs+. No respondents were below ₹5 lakhs in stated income (focused on middle, not low-income). This confirms that the vast majority (over 88%) fall within the intended middle-class range (₹5–15L), and even those above ₹15L are just slightly above the threshold. The median bracket is clearly ₹10–15L, indicating a solidly middle-class sample by Indian urban standards. It is worth noting that Delhi's cost of living is high, so a ₹10–15L income corresponds to a comfortable but not affluent lifestyle. This context matters: these consumers have discretionary spending power but also budget constraints, making their choices interesting to study (they are neither struggling for basics nor splurging without concern). The income data also suggests that many respondents likely come from families with stable salaries (since such incomes are typical of households with, say, dual earners in mid-level jobs or small business owners in the city).



(Figure: 4.4, Source: Google Forms Survey)

- Education**:** The education level was notably high. 70.5% of respondents reported their highest education as Postgraduate (Master's or equivalent), with most others being Graduates (bachelor's degree holders). A few (under 5%) had only high school or a professional diploma. This aligns with the occupation profile (many are students pursuing or having completed postgraduate studies). It implies the sample is a highly educated middle-class subset. High education correlates with digital literacy, so it would be expected this group to not face significant barriers in using fintech apps. This could mean the findings might represent a "best case" scenario of fintech impact (since these users can navigate technology easily). Less-educated middle-income individuals (perhaps older shopkeepers or others) might have different usage patterns.



(Figure: 4.5, Source: Google Forms Survey)

In summary, the "case" examination is predominantly young, well-educated, middle-class individuals (often students) in Delhi-NCR. They are exactly the type of population one would expect to be enthusiastic adopters of fintech. Therefore, any changes in spending patterns observed in this group could be an early indicator of how fintech might affect broader middle-class behaviour as these technologies become ubiquitous. The limitation, of course, is that this group might also be unusually prone to certain behaviour s (e.g., impulse buying) due to youth, or may not reflect older middle-class experiences (who might be more resistant to change). The analysis will later discuss such caveats.

4.2 Data Collection Summary

The data for this study were collected through a Google Forms survey, as described in the methodology. To reiterate briefly and connect with the analysis: participants responded to a questionnaire covering their fintech usage and spending experiences. The use of Google Forms enabled a smooth data gathering process and the automatic collation of results into a spreadsheet (referenced in *.xlsx*). The questionnaire (provided as *Questionnaire.docx* in the supporting files) ensured that each research objective was touched upon by one or more questions. For example, to address whether fintech usage correlates with more impulse spending, the form directly asked about impulse purchase frequency post-fintech adoption. Using an online form proved advantageous given the sample's high internet usage; it also

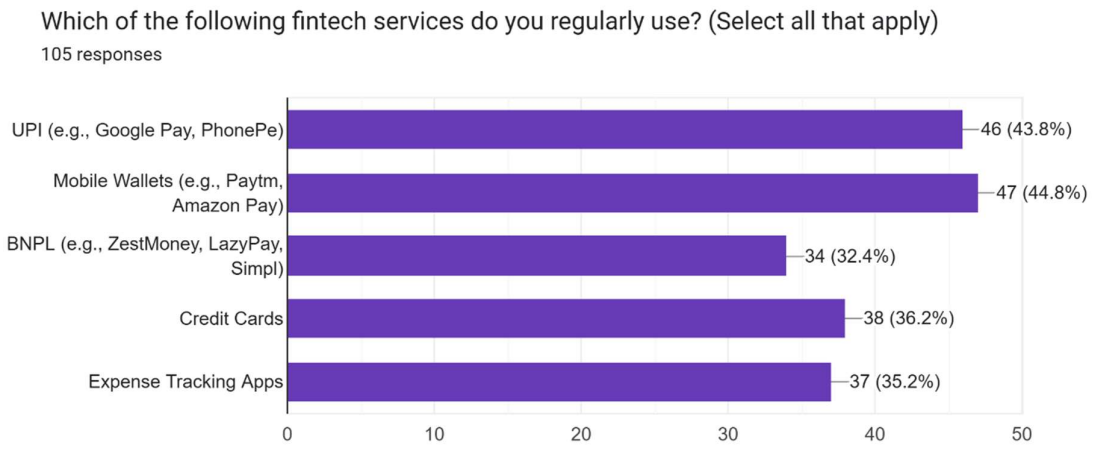
timestamped responses and allowed anonymity, likely improving honesty. This noted that the survey was conducted in English (given the high education level of respondents, language was not a barrier, though this means findings apply to English-proficient users). The data collection period was June–July 2024. It did not encounter major difficulties in data collection aside from ensuring enough responses – a final round of reminders had to be sent to achieve the 100+ target. No incentives were given for participation; respondents participated voluntarily for the sake of contributing to research (and possibly curiosity about their own habits). The data from the Google Form was then exported to Excel for cleaning and analysis, as detailed earlier.

In summary, the study's evidence base is a single-time set of 105 cases, with each case providing multiple datapoints on fintech use and expenditure changes. The integrity of this data is supported by consistency checks and its alignment with what one would expect from such a population (e.g., heavy UPI usage). With the case and data collection described, this can now proceed to present the analysis of the results, followed by discussion and interpretation in light of the objectives and literature.

4.3 Data Analysis

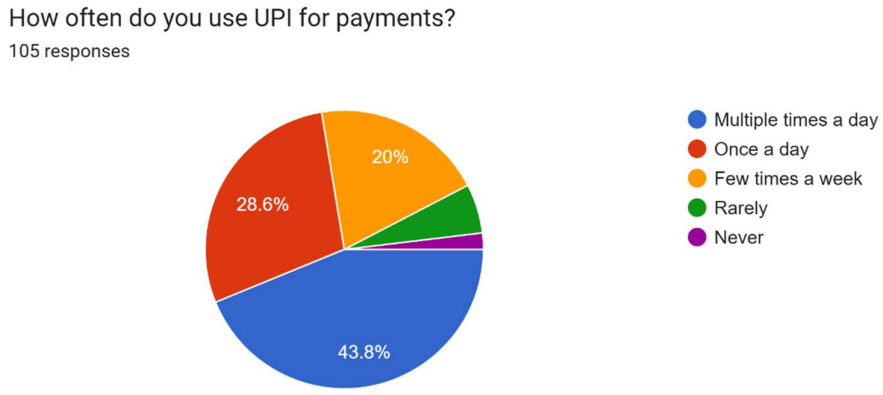
Fintech Adoption and Usage Patterns**:** The first set of findings pertains to how the middle-income respondents are using fintech services. As anticipated, adoption is near-universal and frequent among this group. Every respondent reported using at least one form of fintech service, and most use several.

- Services Used**:** When asked which fintech services they regularly use (multiple selection allowed), the top two were Mobile Wallets (like Paytm, Amazon Pay) and UPI apps (Google Pay, PhonePe, etc.), each cited by ~44% of respondents. This indicates that a large portion of the sample uses both (since many chose multiple options). Following close behind, around one-third of respondents said they regularly use Credit Cards (34%) and Expense Tracking Apps (~32%). Notably, BNPL services were selected by roughly 32% as well, showing that about one in three has experience with dedicated BNPL platforms. These figures demonstrate that digital payments via UPI and wallets have become mainstream for the respondents, and even newer fintech offerings like BNPL have gained substantial traction in this middle-class youth demographic. It is interesting that expense tracking apps are used by nearly a third – suggesting a segment actively interested in managing their finances using fintech tools (this may correlate with those who are more budget-conscious). The prevalence of credit card usage (which is a more traditional form of credit) alongside BNPL indicates that the sample isn't shunning traditional banking products; rather, they are augmenting them with fintech options.



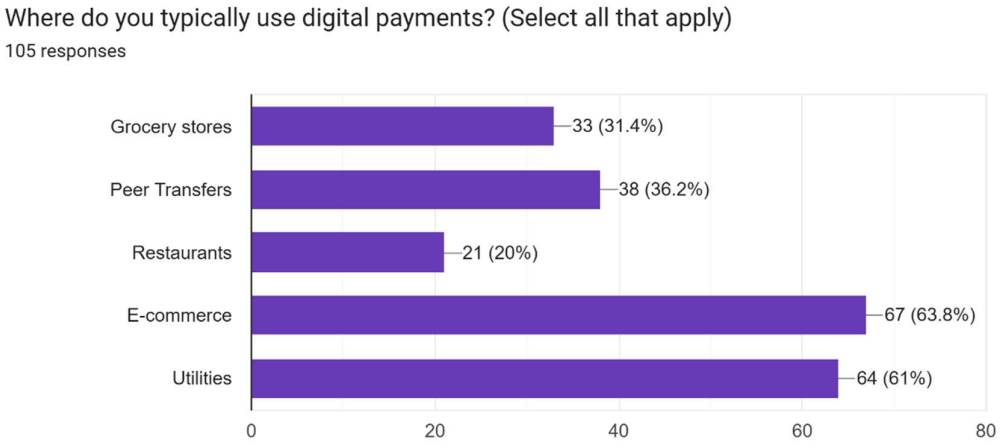
(Figure: 4.6, Source: Google Forms Survey)

- UPI Usage Frequency**:** UPI has emerged as the dominant payment mode for small and medium transactions in India, and the data strongly reflects this. An overwhelming 72.4% of respondents use UPI at least once a day, with 43.8% reporting "multiple times a day" usage. An additional ~20% use UPI a few times a week. Only a tiny fraction rarely or never use UPI (indeed, just 1 person said "Never"). This frequency distribution underscores how deeply ingrained UPI-based payments are in daily life. Many respondents likely use UPI for routine activities like splitting bills, paying for cabs, buying groceries, etc., multiple times in a single day. The heavy usage aligns with national statistics that UPI is handling billions of transactions monthly. For the purposes, this means if there is any behaviour al effect of fintech on spending, UPI's ubiquity provides ample exposure for such effects to manifest. It also implies that *comparisons between "users" and "non-users" of fintech are not very meaningful in this context – almost everyone is a user. Instead, differences are more among heavy vs. moderate users.*



(Figure: 4.7, Source: Google Forms Survey)

- Use Cases for Digital Payments: Inquired where people typically use digital payments (multiple options). The most common use cases turned out to be E-commerce (63.8% indicated using digital payments for online shopping) and Utilities/Bill payments (61% for electricity, phone bills etc.). This suggests fintech has largely replaced other methods for these relatively structured payments – not surprising, as online shopping inherently requires digital payment, and utility companies increasingly support digital modes. Following that, Peer-to-peer transfers and Grocery store purchases were each selected by about 30–36% of respondents. That indicates a significant minority use UPI to pay friends/family or at local shops. Fewer respondents (under 30%) selected Restaurants as a typical use case; this could reflect that some still use cash or cards when dining out, or possibly that largely student sample doesn't eat at restaurants as frequently. The key takeaway is that digital payments are extensively used for both essential expenses (utilities, groceries) and discretionary expenses (e-commerce, dining) among this group. Fintech is not confined to certain purchase types – it's broadly integrated into their spending habits.



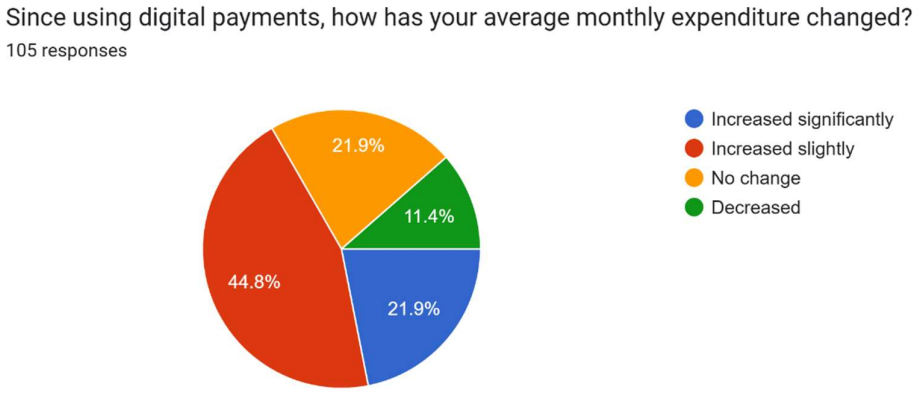
(Figure: 4.8, Source: Google Forms Survey)

These adoption findings already hint at possible impacts: if such a high proportion are using UPI daily and for a wide range of purchases, any ease-of-use effect (reducing friction) could plausibly affect a large share of their transactions. Additionally, the use of credit (via credit cards or BNPL by about one-third each) means a notable segment has the ability to spend now and pay later, which could inflate expenditures if not carefully managed. Now turned to the evidence on spending pattern changes.

Perceived Changes in Expenditure After Adopting Fintech**:** A crucial survey question asked respondents to self-assess how their average monthly spending changed since they started using digital payments frequently. The results are quite revealing:

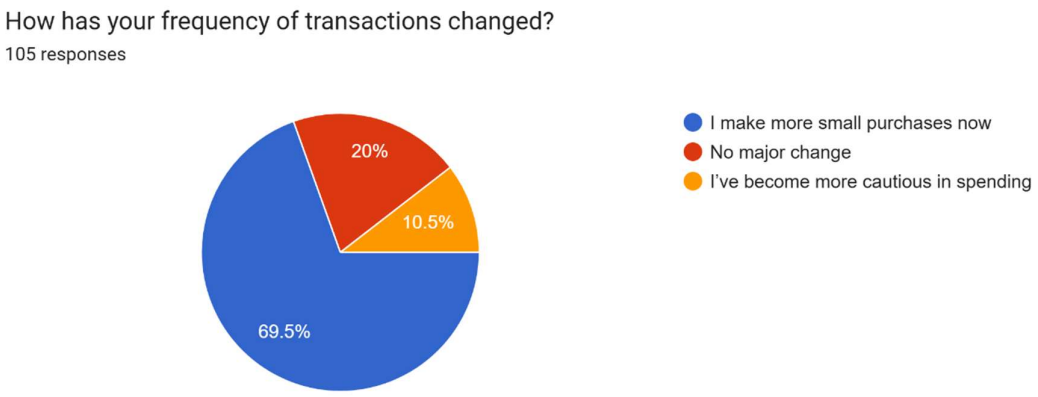
Figure 4.9: Reported Change in Monthly Expenditure After Adopting Digital Payments. (Among 105 respondents, 66.7% reported an increase in spending, while only 11.4% reported a decrease. "No change" was reported by 21.9%.)

As Figure 4.9 illustrates, over two-thirds of respondents felt that their monthly expenditure increased after adopting fintech tools. Specifically, 44.8% said their spending "Increased slightly" and an additional 21.9% reported it "Increased significantly." Combining these, about 66.7% experienced an increase in spending. Meanwhile, 21.9% perceived no change in their spending levels. Only 11.4% indicated that they now spend less (decreased) than before. These numbers strongly suggest that, in the view of users themselves, fintech adoption has generally led to higher spending. The fact that a significant majority reports spending more (and one-fifth even say "significantly" more) aligns with the hypothesis that digital payments encourage greater expenditure by making transactions easier and perhaps psychologically less taxing. It's worth noting that these are self-reported perceptions, not actual expenditure logs; however, perception is important as it reflects the users' own awareness (or lack thereof) of changes in their budget. The minority (about one in nine) who spend less could be individuals who benefited from budgeting tools or who became more cost-conscious once they could track their expenses digitally – or they might simply be outliers who changed life circumstances (unrelated to fintech) affecting spending.



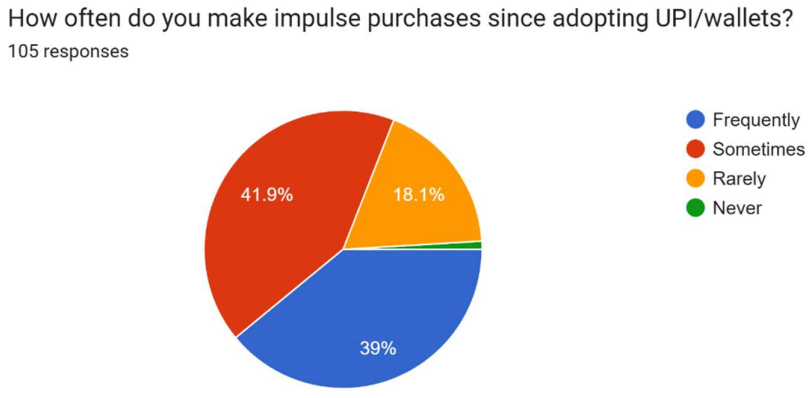
(Figure: 4.9, Source: Google Forms Survey)

Change in Transaction Frequency**:** Related to spending levels is the question of purchase frequency – are people buying things more often in the digital age (even if each purchase is small)? Asked how the frequency of making transactions (especially small purchases) has changed. The results: 69.5% of respondents agreed that "I make more small purchases now" since using digital payments. Meanwhile, 20% said "No major change" in how often they transact, and 10.5% said "I've become more cautious in spending." This indicates that for the bulk of users, digital payments have led to more frequent transactions – likely because apps make it so convenient to pay even for minor items or on a whim. Instead of perhaps postponing purchases or consolidating them, people are comfortable buying immediately when needed. For example, with cash one might wait to have exact change or batch purchases, but with UPI one can buy a ₹50 item whenever. The 10.5% who became more cautious is an interesting smaller group – it could include those who consciously reined in spending after an initial surge, or those who use expense trackers to limit themselves. Nonetheless, the dominant trend is increased frequency, which supports the narrative that fintech reduces friction and encourages more "instant" spending behaviour.



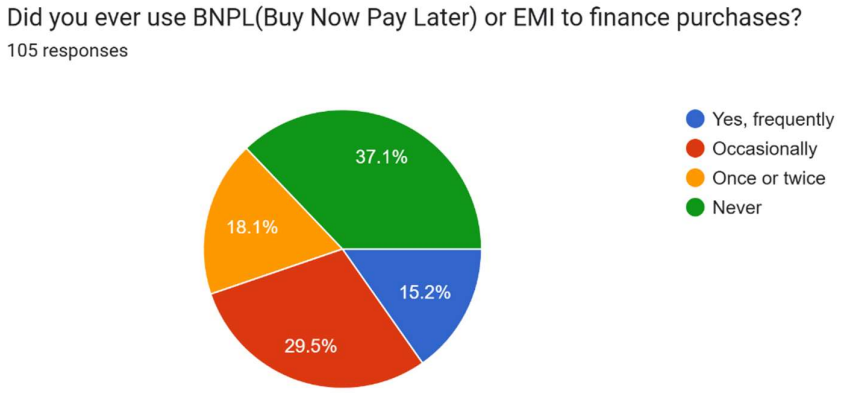
(Figure: 4.10, Source: Google Forms Survey)

Impulse Purchases**:** One of the focal points was whether impulse buying had risen after adopting fintech. Explicitly asked how often they make impulse purchases (unplanned buys) now. The combined results show that an overwhelming 80.9% of respondents admit to making impulse purchases either *"Frequently"* (39.0%) or *"Sometimes"* (41.9%) with digital payments. Only ~18% said *"Rarely"* and essentially 1% said "Never." In other words, virtually everyone has made impulsive buys using fintech, and four out of five do so at least sometimes. Before the advent of such easy payments, some of these impulses might have been curtailed by the hassle of paying or the time to reconsider. Now, the fact that nearly 40% do it frequently underscores fintech's role in enabling spontaneous spending. Many respondents essentially acknowledged that the ease of transaction has reduced their hesitation to make purchases on the fly, leading to more impulse buys. This finding is a direct user confirmation of what behaviour al theory predicted (the reduced "pain of paying") – users feel it themselves in their habits. It's also worth noting that impulse purchases aren't necessarily large expenditures; they could be small (like ordering dessert or buying a gadget accessory online). But over time, many small impulse purchases can add up, contributing to the overall increase in spending noted above.

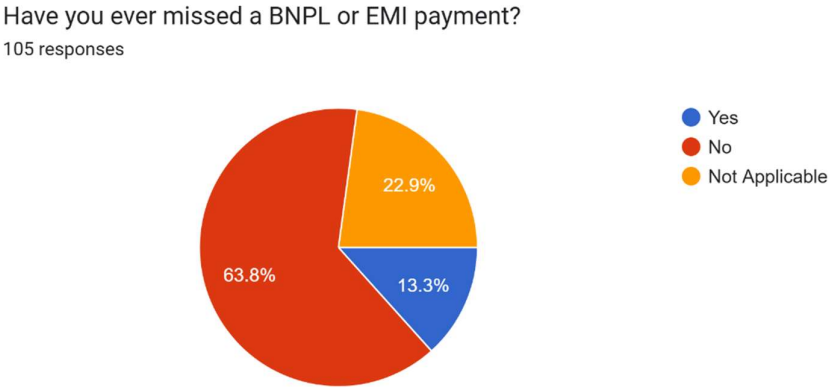


(Figure: 4.11, Source: Google Forms Survey)

Use of BNPL and Credit**:** Also explored how many respondents use the new fintech credit tools and whether that has led to any repayment issues. Found that 62.9% of respondents have used Buy Now, Pay Later (BNPL) or EMI options at least once (the sum of those who said frequently, occasionally, or once/twice). Within that, 15.2% are frequent users of BNPL/EMI and 29.5% use it occasionally, while 18.1% tried it only once or twice. 37.1% have *never* used BNPL. This indicates a majority has dabbled in fintech-enabled credit for purchases, though frequent usage is limited to about one in six individuals. The relatively high uptake of BNPL among what are mostly young consumers (many of whom might not have full-time income) is notable – it suggests that BNPL is serving as an alternative to credit cards for those who may not have a credit card or prefer the seamless integration of BNPL in apps.



(Figure: 4.12, Source: Google Forms Survey)



(Figure: 4.13, Source: Google Forms Survey)

Then asked if they have ever missed a payment on BNPL/EMI. Among those for whom it was applicable, 13.3% admitted to having missed a payment. The majority (63.8%) said they have not missed any, and the rest marked "Not Applicable" (22.9%, presumably those who never used BNPL or had just one-off use that didn't entail ongoing payments). The fact that about one in eight total respondents ended up missing a BNPL/EMI payment is a cautionary signal – it shows that fintech credit can indeed lead to some degree of financial stress or mismanagement even in this relatively financially literate group. Missing a payment could result from forgetfulness or from over-commitment (spending beyond means). Given the young sample, some might have underestimated the burden of paying in instalments. On the flip side, the majority managed to handle their BNPL obligations fine, so it shouldn't be overstated – but it's a non-trivial minority facing issues.

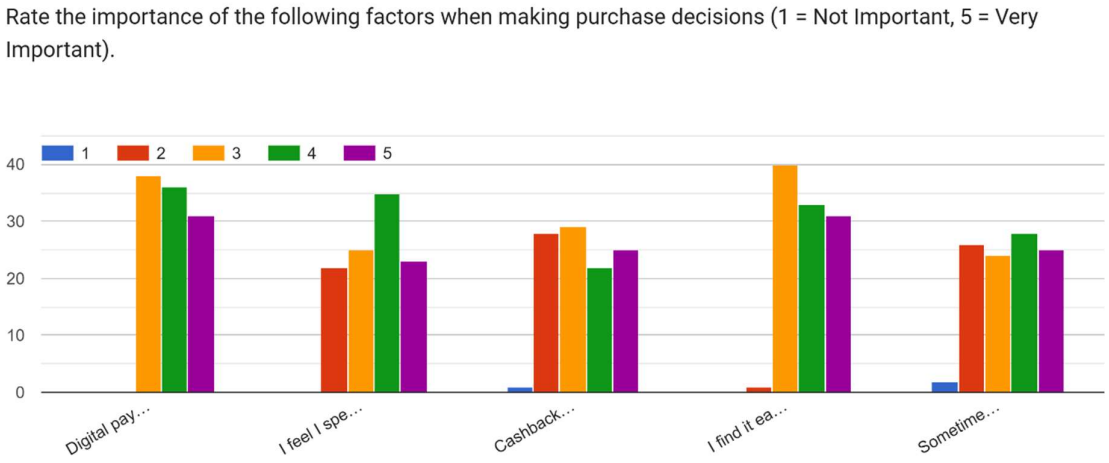
To connect this to objectives: these credit usage findings feed into understanding if fintech leads to any financial strain. It appears for most, BNPL is being used cautiously (infrequently or moderately), but there is a subset for whom usage is frequent and a smaller subset who have had trouble with repayment – highlighting a potential risk area.

Attitudes and Perceptions (Likert-scale insights): Respondents' ratings of the attitudinal statements provide nuanced understanding of their experiences. Summarized key points from those ratings (with the caveat that these are subjective importance scores):

- Digital payments are more convenient than cash**:** Almost everyone strongly felt this convenience. A vast majority rated this 4 or 5 (important/very important), confirming that convenience is a primary driver of fintech adoption in this group. This aligns with the high frequency of use – they use it often because it's convenient. Convenience was essentially a given, which explains why people might tolerate or accept any downsides.
- "I feel I spend more now due to the ease of payments." Ratings for this statement were more spread out, but there was a significant skew toward agreement. Many respondents gave it a 4 (agree) – indicating a notable proportion consciously feels that they are spending more because it's easier to pay now. This self-awareness is interesting: it means people recognize the cause-effect that the frictionless nature of payments has on them. Some rated it lower, perhaps those who believed they have not increased spending or are controlling themselves.
- Cashback and rewards motivate me: Responses clustered around the middle to somewhat agree. On average, people found cashback/rewards moderately influential (often rating 3 or 4 out of 5). This suggests that while rewards (like UPI app cashback, loyalty points) are a nice perk, they may not be the primary factor overriding spending decisions for most – convenience and ease seem to be bigger factors. Still, a good number did indicate that rewards play a role; fintech companies' strategies of offering incentives likely contributed to initial adoption and usage frequency (e.g., "Spend ₹X and get ₹Y back" could encourage an extra purchase).
- "I find it easier to track my spending due to digital apps." A strong majority gave this a high rating. Many marked 4 or 5, showing that people do appreciate the transparency fintech provides – every transaction leaves a digital record, and some use dedicated expense tracking features. This is a positive aspect: users feel more visibility into their finances. For instance, one can check their wallet or bank app to see the month's

spending summary, something not possible with cash usage. This finding highlights the potential of fintech to improve financial management. Indeed, some respondents in open-ended comments mentioned that having records of all expenses (via SMS alerts or app logs) made them more conscious of their spending, even if it didn't always stop them from spending.

- "Sometimes I lose track of my expenses because digital payments feel effortless." Intriguingly, this statement also received many high ratings (4 or 5). Essentially, people are saying that *despite* the tracking tools, they still sometimes lose track precisely because spending is so easy and doesn't feel like spending in the moment. This underscores the duality noted: fintech gives tools to monitor expenses, yet the act of spending is so frictionless that one may overspend before even consulting those tools. A lot of respondents agreed that they occasionally realized later how much they had spent because the transactions were so quick and painless that they didn't register at the time. This could happen, for example, if one taps their phone for 10 small payments in a day and only later tallies up the total.



(Figure: 4.14, Source: Google Forms Survey)

In summarizing these attitudinal findings: Convenience and ease are the big positives, overspending and reduced expense salience are the negatives, and rewards and tracking are notable factors with mixed influence. Essentially, the middle-class users love the convenience and see that as a major benefit, they are somewhat seduced by rewards, they use or appreciate tracking features, yet they simultaneously experience the downside of possibly spending more and not realizing it in real time. This qualitative balance helps explain why 66% said their spending increased – it's the net outcome of those forces.

Statistical Association Analysis**:** Conducted chi-square tests to examine if heavy fintech usage is significantly associated with spending changes or impulse frequency. Two hypotheses were tested:

Hypothesis 1

- Null Hypothesis (H_0): UPI usage frequency is independent of changes in monthly expenditure.
- Alternate Hypothesis (H_1): UPI usage frequency is associated with changes in monthly expenditure.

Cross-tabulated UPI usage (five levels from "Never" to "Multiple times a day") with the reported spending change (four levels from "Decreased" to "Increased significantly"). Intuitively, expected that those using UPI very frequently might report increases more often. However, the chi-square test yielded χ^2 (12 df) = 9.289, p = 0.678. This p-value is well above 0.05, indicating no statistically significant association between how frequently someone uses UPI and whether their spending went up or not. In other words, even light/medium users of UPI reported spending increases at rates similar to heavy users. This was somewhat surprising at first glance. On examining the data, found that most respondents, regardless of usage level, clustered in reporting "increased slightly" or "no change" – the pattern of responses didn't differ enough by usage frequency to be significant. One likely reason is that almost everyone in the sample uses UPI quite regularly (even the lowest category "Rarely" had very few people). There's a restricted range problem: with 99% using UPI to some degree, and majority heavy, there isn't a clear contrast group of "non-users" to compare against. Another interpretation is that other factors (like individual spending habits or income) could play a bigger role in spending change than just usage frequency. For instance, someone who uses UPI moderately might still see a big spending jump if they have a predisposition to impulsivity, whereas a very heavy user might be a disciplined person who budgets. The lack of a clear usage-to-spending correlation suggests fintech's impact on spending is not simply a linear function of how often one uses an app; it's more complex and perhaps nearly ubiquitous across usage levels.

- Chi-Square Value: 9.289
- Degrees of Freedom: 12
- Asymptotic Significance (2-sided): 0.678

Observed Frequencies

UPI Usage	Decreased	Increased significantly	Increased slightly	No change
Few times a week	3	3	8	7
Multiple times a day	5	11	21	9
Never	1	0	1	0
Once a day	2	7	16	5
Rarely	1	2	1	2

(Table: 4.1, Source: Own Analysis)

Expected Frequencies

UPI Usage	Decreased	Increased significantly	Increased slightly	No change
Few times a week	2.40	4.60	9.40	4.60
Multiple times a day	5.26	10.08	20.59	10.08
Never	0.23	0.44	0.90	0.44
Once a day	3.43	6.57	13.43	6.57
Rarely	0.69	1.31	2.69	1.31

(Table: 4.2, Source: Own Analysis)

Chi-Square Contributions

UPI Usage	Decreased	Increased significantly	Increased slightly	No change
Few times a week	0.15	0.56	0.21	1.25
Multiple times a day	0.01	0.08	0.01	0.11
Never	2.60	0.44	0.01	0.44
Once a day	0.60	0.03	0.49	0.38
Rarely	0.14	0.36	1.06	0.36

(Table: 4.3, Source: Own Analysis)

Hypothesis 2

- Null Hypothesis (H_0): UPI usage frequency is independent of impulse purchase frequency.
- Alternate Hypothesis (H_1): UPI usage frequency is associated with impulse purchase frequency.

- Similarly, cross-tabulated UPI use level with how frequently they make impulse buys. The chi-square result was χ^2 (12 df) = 9.009, p = 0.702, again indicating no significant association. So statistically, a person using UPI "multiple times a day" was just as likely to report frequent impulses as someone using it "once a day" or "few times a week." Descriptively, observed that most of those who "Never" or "Rarely" use UPI (a very small subgroup) tended to not impulse buy frequently, which makes sense – if you hardly use digital payments, you won't impulse spend digitally. But because that subgroup is tiny, the test's power was low and overall, the pattern among the common usage categories didn't differ significantly. In essence, impulse buying was widespread at all usage levels – even moderate fintech users indulged often. One might have expected that those using it every hour would impulse buy more, but it appears once a person crosses a threshold of adopting fintech (which all respondents have), the propensity to impulse buy is high across the board. The difference might be more in *what* they impulse buy or how much, rather than whether they do at all.

- Chi-Square Value: 9.009
- Degrees of Freedom: 12
- Asymptotic Significance (2-sided): 0.702

Observed Frequencies

UPI Usage	Frequently	Never	Rarely	Sometimes
Few times a week	6	0	5	10
Multiple times a day	21	1	5	19
Never	0	0	1	1
Once a day	10	0	7	13
Rarely	4	0	1	1

(Table: 4.4, Source: Own Analysis)

Expected Frequencies

UPI Usage	Frequently	Never	Rarely	Sometimes
Few times a week	8.20	0.20	3.80	8.80
Multiple times a day	17.96	0.44	8.32	19.28
Never	0.78	0.02	0.36	0.84
Once a day	11.71	0.29	5.43	12.57
Rarely	2.34	0.06	1.09	2.51

(Table: 4.5, Source: Own Analysis)

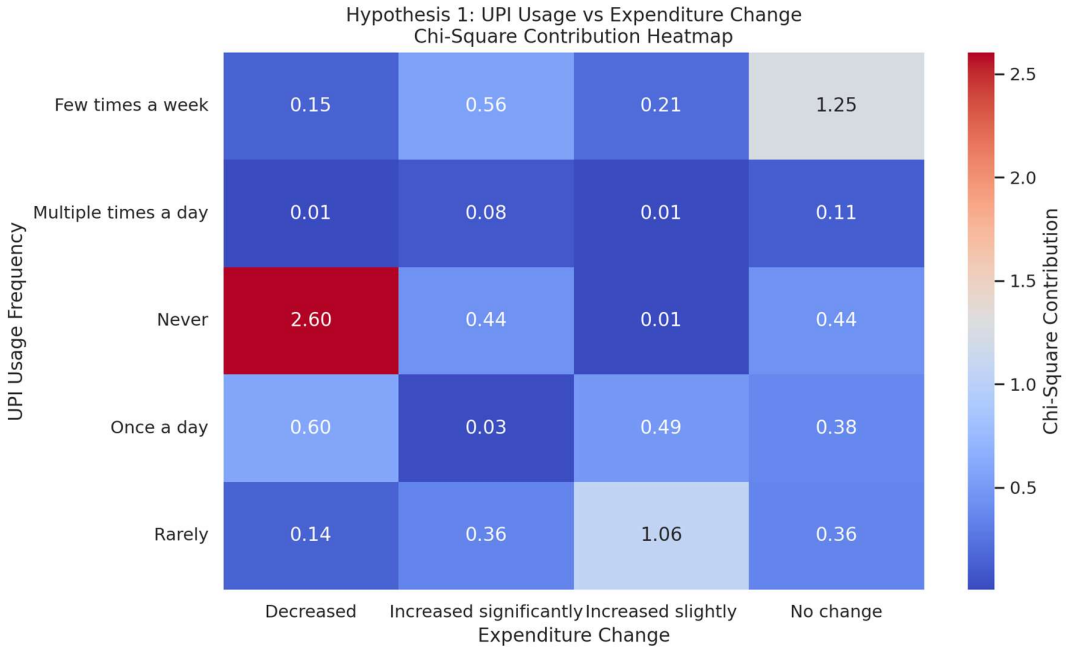
Chi-Square Contributions

UPI Usage	Frequently	Never	Rarely	Sometimes
Few times a week	0.59	0.20	0.38	0.16
Multiple times a day	0.51	0.72	1.33	0.00
Never	0.78	0.02	1.13	0.03
Once a day	0.25	0.29	0.45	0.01
Rarely	1.17	0.06	0.01	0.91

(Table: 4.6, Source: Own Analysis)

Both hypothesis tests thus did not find a statistically significant relationship in the sample. It's important to interpret this correctly: this does not mean fintech use has no impact on spending or impulse – the descriptive evidence clearly shows most users are spending more and impulse buying. It simply means within the sample, being a super-heavy user vs. a moderately heavy user didn't significantly change the likelihood of those outcomes. This could be due to sample homogeneity (as discussed) or because the effect of fintech on spending is not a simple monotonic one captured by usage frequency alone.

Correlation Heat Map: Hypothesis 1 Chi-Square Contributions



(Figure: 4.15, Source: Own Analysis)

Hypothesis 1: UPI Usage vs Expenditure Change

This heatmap shows the Chi-square contributions of each cell in a contingency table analyzing the relationship between UPI usage frequency (rows) and expenditure change (columns). The higher the contribution, the more that particular combination deviates from what is expected under the null hypothesis of independence.

<u>High Contributions (Outliers from Expected Values):</u>

1. Never used UPI – Decreased Expenditure (2.60)
    - This is the largest contributor to the overall chi-square statistic.
    - Indicates that people who never use UPI are significantly more likely to report decreased expenditure than expected.
    - Implies a potential negative correlation between not using UPI and higher spending.
2. Few times a week – No Change (1.25)
    - This suggests users who use UPI only a few times a week are more likely to report no change in expenditure than expected.

3. Rarely – Increased Slightly (1.06)
    - Indicates that infrequent UPI users show a slight increase in expenditure more often than expected.

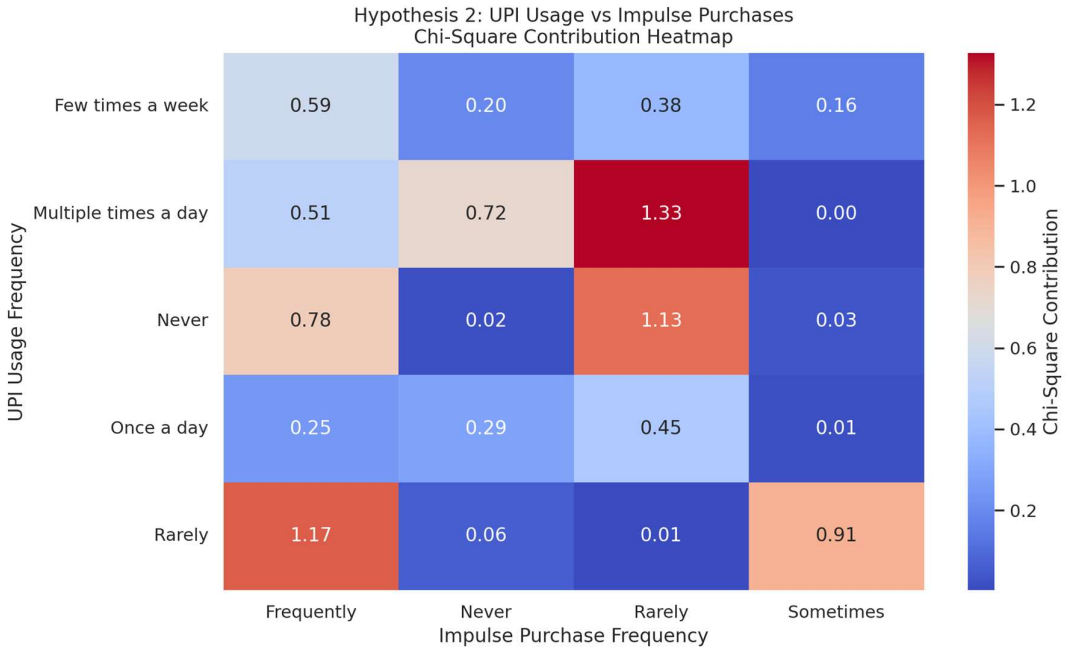
Low Contributions (Close to Expected Values):

- Multiple times a day across all expenditure change categories have very low contributions (0.01 to 0.11), suggesting:
    - High-frequency UPI users follow the expected pattern.
    - No significant deviation, so they do not strongly influence the chi-square statistic.

Other Notable Points:

- Once a day – Decreased (0.60) and Increased slightly (0.49) also contribute moderately.
- Most other cells have contributions below 0.5, showing no strong deviation from independence.

Hypothesis 2 Chi-Square Contributions



(Figure: 4.16, Source: Own Analysis)

Hypothesis 2: UPI Usage vs Impulse Purchases

This heatmap shows Chi-square contributions for testing the association between UPI usage frequency (rows) and impulse purchase frequency (columns). A higher value indicates a greater deviation from what is expected under the null hypothesis of independence.

<u>High Contributions (Key Deviations):</u>

1. Multiple times a day – Rarely (1.33)
    - This is the highest chi-square contributor, suggesting that frequent UPI users are significantly less likely to make impulse purchases rarely than expected.
    - Indicates a strong association: frequent UPI users may be more prone to impulse purchases.

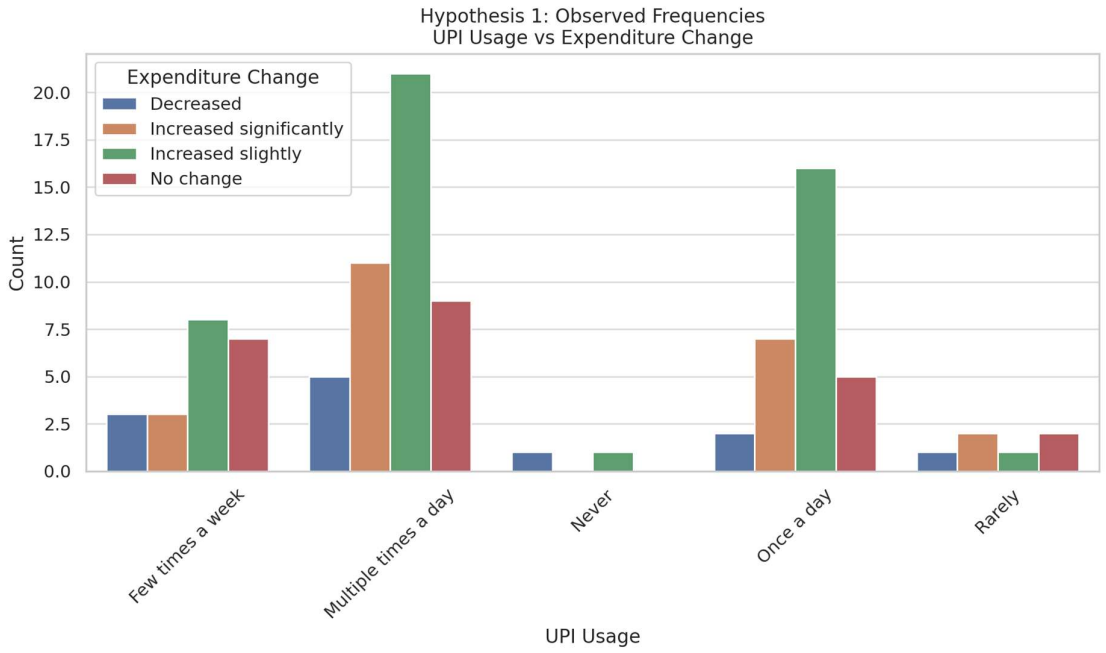
2. Never – Rarely (1.13)
    - Individuals who never use UPI show a strong positive deviation in the "Rarely" category.
    - Suggests that non-UPI users are more likely to avoid impulse buying, reinforcing a conservative spending behaviour.

3. Rarely use UPI – Frequently (1.17)
    - Indicates that people who rarely use UPI are more likely to make frequent impulse purchases than expected.
    - This is counterintuitive and might suggest a specific user group (e.g., cash-preferred or alternate app users) that spends impulsively despite not using UPI much.
4. Rarely use UPI – Sometimes (0.91)
    - Adds to the insight above—those who rarely use UPI tend to fall into categories with non-negligible impulse activity.

<u>Moderate/Low Contributions (No Strong Association):</u>

- Most other cells such as:
    - Once a day – all impulse categories (0.01–0.45)
    - Few times a week – all impulse categories (0.16–0.59) show moderate or low contributions, indicating these groups behave mostly as expected under the null.

Bar Chart: Hypothesis 1 Observed Frequencies



(Figure: 4.17, Source: Own Analysis)

Hypothesis 1: UPI Usage vs Expenditure Change
(Observed Frequencies)

This bar chart shows the actual observed frequency counts of survey respondents categorized by how frequently they use UPI and how their expenditure changed.

<u>High UPI Users (Multiple times a day):</u>

- Increased slightly**:** Very high count (~21)
- Increased significantly**:** Also quite high (~11)
- No change**:** Moderate (~9)
- Decreased**:** Low (~5)

Frequent UPI users are mostly associated with increased expenditure, especially slight increases. This suggests that ease of digital payments might encourage more frequent, though controlled, spending.

Moderate UPI Users (Once a day):

- Increased slightly**:** High (~16)
- Increased significantly & No change**:** Moderate
- Decreased**:** Low

Similar to the group above but slightly less intense, this supports the trend that frequent digital payment users often report higher spending.

Occasional UPI Users (Few times a week):

- Distribution is relatively balanced, but:
    - Highest in increased slightly
    - Notably high in no change

Less frequent UPI users appear to have mixed or stable expenditure patterns, with many reporting no major shift in spending.

Non-UPI Users (Never):

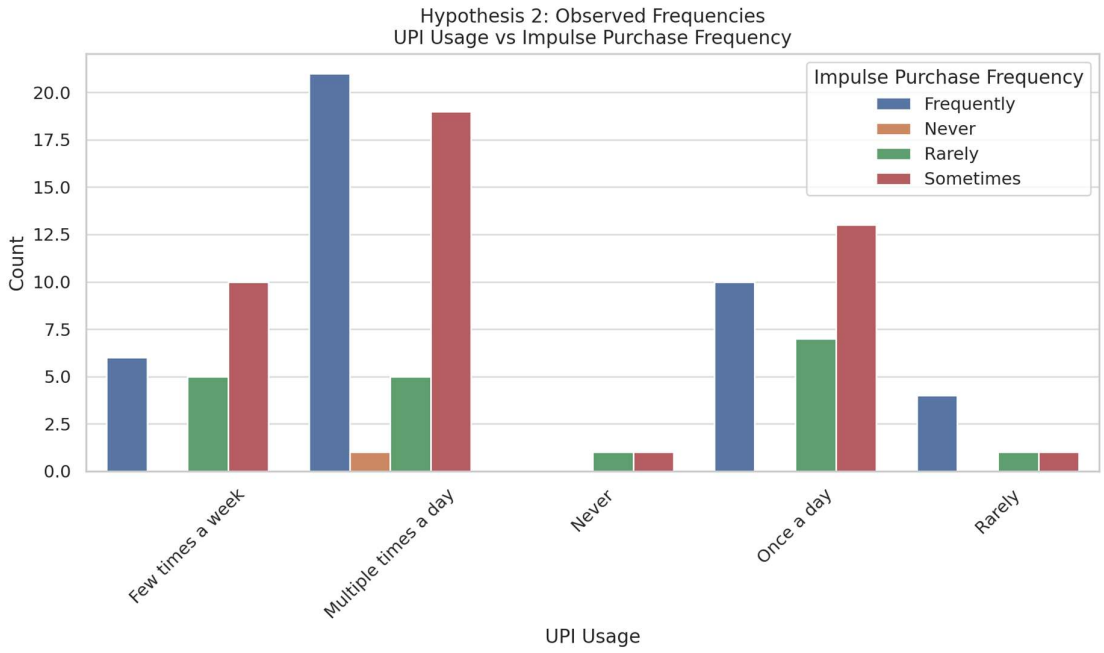
- Decreased**:** Very low but most frequent in this group.
- All categories are very low in count.

This aligns with the chi-square heatmap, suggesting people who don't use UPI are less active financially, often reporting no or reduced expenditure.

Rare Users (Rarely):

- Counts are low but spread across all expenditure categories.

Bar Chart: Hypothesis 2 Observed Frequencies



(Figure: 4.18, Source: Own Analysis)

Hypothesis 2: UPI Usage vs Impulse Purchase Frequency
(Observed Frequencies)

This bar chart shows the observed frequency counts of survey respondents categorized by how frequently they use UPI and how often they make impulse purchases.

<u>High UPI Users (Multiple times a day):</u>

- Frequently**:** Very high (~21)
- Sometimes**:** Very high (~19)
- Rarely**:** Low (~5)
- Never**:** Very low (~1)

People who use UPI multiple times a day are most likely to make impulse purchases, either frequently or sometimes. This suggests that easy access to digital payments is strongly linked to impulsive buying behaviour.

Moderate UPI Users (Once a day):

- Sometimes**:** High (~13)
- Frequently**:** High (~10)
- Rarely**:** Moderate (~7)
- Never**:** None

Daily UPI users also tend to engage in frequent or occasional impulse buying, reinforcing the trend that regular digital payment usage correlates with impulsive shopping.

Occasional UPI Users (Few times a week):

- Sometimes**:** Moderate (~10)
- Frequently**:** Moderate (~6)
- Rarely**:** Moderate (~5)
- Never**:** None

People using UPI a few times a week show a more balanced pattern, with many falling in the "sometimes" or "rarely" impulse buying categories. Spending behaviour appears less extreme compared to higher-frequency users.

Non-UPI Users (Never):

- Rarely**:** Very low (~1)
- Sometimes**:** Very low (~1)
- Frequently & Never**:** None

This group shows minimal impulse buying activity, as expected. Lack of digital payment usage appears to correlate with lower spending behaviour overall.

Rare UPI Users (Rarely):

- Frequently**:** Low (~4)
- Rarely & Sometimes: Very low (~1 each)
- Never**:** None

Rare users show sporadic impulse buying, mostly on the lower end. Their behaviour aligns more with non-users than with high-frequency users.

Overall Findings Synthesis**:** Putting everything together, it draw the following key findings from the analysis:

- Middle-income consumers in Delhi-NCR are enthusiastic fintech adopters, using services like UPI and mobile wallets daily for a wide array of transactions. Cash usage has been largely supplanted in their routine expenses, though some cash or card use remains in certain cases.
- A majority report an increase in spending since adopting fintech, and a large majority report making purchases more frequently and more impulsively. This aligns with the idea that digital payments can encourage higher consumption by reducing payment friction and offering on-tap credit.
- Fintech usage also introduced many to new credit mechanisms (BNPL), with most managing fine but a notable minority experiencing missed payments, indicating early signs of potential financial stress or mis-budgeting related to these tools.
- User perceptions reflect a dual impact: *convenience and efficiency* on one hand, and *diminished control/awareness leading to overspending* on the other. Users appreciate the ease and tracking, yet many acknowledge overspending because of that very ease.
- Statistical tests did not find significant differences in spending or impulse behaviour between varying levels of usage frequency, suggesting that once fintech is adopted, its influence on behaviour is pervasive across user types. It's not just the ultra-frequent users who are affected; even moderate users exhibit similar patterns of increased spending and impulses.

In conclusion of the analysis, the findings strongly suggest that fintech innovations have indeed impacted the expenditure patterns of the studied group – primarily by increasing overall spending and facilitating more impulsive, frequent transactions, even as they also provide better tools for financial management. This confirms many of the expectations drawn from literature and sets the stage to discuss what these results mean and what can be done about them. In the next section (4.4), discussed the implications of these findings and offer recommendations, and in 4.5 outlined the study's limitations to contextualize the results.

4.4 Discussion and Recommendations

Discussion of Findings**:** The results from survey provide evidence that fintech innovations are a double-edged sword for middle-income consumers. On one side, they greatly enhance convenience, access, and even financial inclusion (nearly everyone in the sample can now make cashless payments and access credit options, something that might not have been true a decade ago). On the other side, they appear to encourage higher spending and impulsive buying, which could undermine personal financial health if left unchecked.

For Delhi-NCR's middle-class (as represented by the young, educated sample), the transformative impact of fintech is clear: habits have shifted from cash-centric, deliberate spending to digital, on-demand spending. Many respondents essentially affirmed the notion that "cash burns a hole in your pocket, but digital money burns even faster." The frictionless nature of UPI means paying doesn't feel like spending real money – until one later adds it up.

This psychological impact, as theorized by Faraz & Anjum (2025) (Spendception: The Psychological Impact of Digital Payments on Consumer Purchase Behaviour and Impulse Buying) and other behaviour al economists, is strongly echoed in the micro-level data (with over 80% experiencing impulse purchases and two-thirds spending more).

An Interesting nuance Is that despite these tendencies, users are not oblivious; they partially recognize what's happening (e.g., many know they spend more and lose track sometimes). This awareness could be leveraged to improve outcomes – if users know the pitfalls, they might appreciate interventions that help them manage the downsides. The findings that many use expense trackers and value the record-keeping shows that fintech also equips consumers with means to self-correct. The question is, do they use them effectively? Some do (the ~10% who said they became more cautious, or the 11% who actually reduced spending with fintech – possibly by leveraging budgeting apps). But clearly many do not manage to restrain their new spending freedom.

From a broader perspective, these patterns can have implications beyond individual finances. If a large segment of the middle class is spending more due to fintech, that can stimulate economic growth and retail business revenues – a positive macro-outcome. Indeed, the respondents' increased spending could be a microcosm of rising consumer demand facilitated by digital payments (as some industry reports have celebrated). However, if spending increases are funded by credit (BNPL, cards) without sufficient income backing, it could lead to rising consumer debt – a concern flagged by global examples (Chicken burger on EMIs? Buy now, pay later signals a global debt crisis | World News – Business Standard). In the sample, BNPL usage was common and mostly well-handled, but remember these are relatively financially literate individuals; the risk of debt distress might be higher among those less savvy. Even among the group, ~13% missing payments is a warning sign – if extrapolated, that could mean a substantial number of middle-class consumers incurring late fees or interest, eroding their financial stability.

It Is also notable that the hypothesis didn't find significant differences by usage intensity – implying that the influence of fintech is broad-based. This could be interpreted that once a person uses digital payments at least somewhat regularly, the behaviour al shift has occurred; beyond that, doing it more often doesn't drastically change the outcome. In practice, one policy implication is that simply reducing frequency (e.g., telling people "Use UPI less") may not be effective; rather, focusing on *how* they use it (more mindfully, with budgeting) might be needed.

Recommendations**:** Based on the findings, proposed a set of recommendations addressed to various stakeholders – fintech companies, consumers (and consumer education bodies), and policymakers/regulators – to maximize the benefits of fintech for the middle-income segment while mitigating the downsides.

- For Fintech Companies and App Developers**:** It is recommended that fintech service providers incorporate features that encourage responsible spending and enhance user awareness. Many apps already send instant payment notifications; building on that, apps could provide real-time spend trackers or warnings. For example, if a user's spending in a day/week crosses a certain self-set limit, the app can alert them ("You've spent ₹X today, which is above your daily average"). Apps might also offer an optional "wallet" approach for budgeting – users could allocate a monthly budget in the app, and

the app deducts each payment from that budget display, giving a visual cue of budget remaining. Additionally, gamifying savings (as some neobanks do) could help – e.g., rewarding users (with badges or small offers) for staying within budget or for not using BNPL too frequently. Improved user interfaces for expense categorization can also help users reflect on where their money goes – many expense-tracking apps exist, but integrating that into payment apps could reach more people. Importantly, fintech companies should carefully design reward incentives so as not to promote reckless spending. Offering cashback on every purchase, while good for driving adoption, might exacerbate overspending. A more sustainable model could be rewards for good financial behaviour (for instance, a lower loan fee for those who never miss BNPL payments, or rewards for using a savings feature). By taking responsibility for user financial wellness, fintech firms can improve long-term customer trust and retention. Evidence from the survey shows users would appreciate such features (since they value tracking, even if they still slip, the tool being there is crucial).

- For Middle-Income Consumers (Financial Education): Consumers themselves need to adapt to this new spending environment by practicing mindful usage of fintech. Financial literacy programs and content (which can be delivered through apps, workplaces, or media) should emphasize budgeting in the digital age. Traditional budgeting (withdraw X amount of cash for the week and spend only that) doesn't directly apply with UPI; instead, consumers can set digital budgets. Recommend individuals to regularly review their e-statements or app expense summaries – perhaps setting a fixed day each week or month to go over finances. Making a habit of checking one's spending log can reintroduce some "friction of awareness" that instantaneous payments remove. Another recommendation is that consumers consider linking their fintech payments to a single dedicated bank account or wallet that they top-up periodically for discretionary spending – this creates a natural limit. For example, load ₹10,000 in a wallet for the month's non-essential spends; once it's exhausted, that's a signal to slow down. Educating consumers about the psychological effects of digital money (found, the decreased pain of paying) can also help – if people consciously know that "I tend not to feel it when I scan QR to pay," they might implement personal strategies such as pausing and thinking "Do I really need this?" before every digital transaction above a threshold. Essentially, self-regulation techniques should be promoted. Since data shows impulse buying is a common regret, one practical tip is the classic advice: impose a 24-hour rule for non-urgent purchases even if buying is just a click away. Put items in the online cart, wait a day, then decide. Consumers enjoying fintech's convenience should also be made aware of how to use the expense management features – many perhaps don't fully utilize them.

- For Credit Usage (BNPL/EMI) – Consumers and Providers: Both users and fintech lenders should exercise caution with BNPL. Recommend greater transparency and reminders. Fintech providers should send clear reminders before due dates and perhaps allow users to set autopay or sync due dates with their calendars. Users, on their part, should treat BNPL like any loan – just because it's easy to obtain doesn't mean its free money. Financial advisories often suggest: only use BNPL for planned purchases that you can afford the instalments for, not for spur-of-the-moment splurges. The finding that 63% used BNPL and 13% missed payments suggests a need for **credit education**:

users must understand interest or penalties that accrue from missed payments (fortunately, many BNPL in India are interest-free if paid on time, but delays can incur fees). Regulators might also consider requiring BNPL providers to show a summary of outstanding BNPL obligations to users in one place (if a user has multiple BNPL purchases, an aggregated view helps avoid oversight).

- For Policymakers and Regulators**:** The government and regulatory bodies (like the Reserve Bank of India) have an interest in preventing consumer over-indebtedness and ensuring fintech is a force for good. Based on this research, policymakers could implement or encourage a few measures:
    - Mandate Responsible Product Design**:** Encourage or require fintech apps to include basic personal finance management tools. Just as RBI mandated banks to send SMS for every transaction to alert users, perhaps fintech apps should be required to show a monthly spending report to users by default. Regulators could issue guidelines for BNPL providers on assessing affordability (maybe soft credit checks or limits for first-time users) to prevent vulnerable consumers from accumulating too much pay-later debt.
    - Public Awareness Campaigns**:** Government and NGOs can run awareness campaigns about digital financial health. For example, short educational messages about avoiding impulse shopping or tips to use UPI wisely can be disseminated through the apps themselves (possibly as part of financial literacy initiatives under Digital India). When UPI or fintech is promoted (as it is heavily), equal emphasis can be laid on smart usage.
    - Data Monitoring**:** Regulators should closely monitor data on consumer debt related to fintech (e.g., BNPL default rates, average outstanding). If early warning signs (like what captured in a small way) show an upward trend, interventions can be made. For instance, setting caps on penalty fees for BNPL so that a missed payment doesn't snowball could protect consumers.
- For Retailers and Businesses**:** An indirect stakeholder is merchants who accept fintech payments. They have benefited from easier payments (fewer lost sales due to lack of change, etc.), but they can also play a role in encouraging responsible use. For instance, e-commerce sites could incorporate a nudge: if a user is buying something frivolous with BNPL repeatedly, perhaps show a gentle reminder or require an extra confirmation ("Are you sure you want to finance this purchase?"). While businesses want sales, sustainable long-term customer relationships might be better than pushing customers into potential financial trouble which later reduces their buying capacity. It's a delicate balance, but ethical business practice in the fintech age might involve some restraint.

In summary, these recommendations aim to strike a balance: not suggested rolling back fintech innovations – their benefits in convenience, inclusion, and efficiency are tremendous and clearly valued by users. Instead, suggested enhancements in design and behaviour that allow middle-income consumers to enjoy the benefits of fintech without falling prey to its pitfalls. With concerted efforts from providers, users, and regulators, it is possible to foster an environment where fintech tools lead to informed and healthy financial behaviour s. For example, a future scenario might be: a Delhi NCR professional uses UPI for all payments

(convenience retained), but her fintech app automatically categorizes and shows her spending trends, warns her gently if she's exceeding her usual budget, and she has set up an auto-transfer to a savings account each month as well. She might still indulge in the occasional impulse buy, but she does so knowingly and within self-imposed limits. This kind of equilibrium is what stakeholders should aim for.

4.5 Limitations of the Study

While this research provides valuable insights into the impact of fintech on spending patterns, it is not without limitations. A clear understanding of these limitations is important for contextualizing the findings and avoiding over-generalization:

- Sample Representativeness**:** The sample, as described, is predominantly young (18–35) and highly educated, with a large fraction of students. This is not fully representative of the entire middle-income demographic in Delhi-NCR, which also includes older age groups, less tech-savvy individuals, and a variety of occupations. Therefore, the findings (e.g., the high incidence of impulse buying or BNPL usage) might be different in magnitude for other sub-populations. Older middle-income adults might be more cautious or use fintech less, potentially showing smaller spending increases – or they might show similar trends but cannot be sure from this sample. The convenience sampling approach limits external validity. Future studies with a randomized, stratified sample of the middle class would improve representativeness.

- Geographical and Cultural Context**:** The study is confined to Delhi-NCR, which is an urban metropolis. The middle class in other cities or rural areas may behave differently. For example, in smaller towns or rural settings, trust in fintech might be lower and cash still preferred more often, or spending patterns could be more conservative culturally. Thus, conclusions mainly apply to urban North Indian middle-class context. Additionally, cultural factors in Delhi (a relatively consumerist city with high exposure to market trends) might amplify some effects that would be muted elsewhere.

- Self-Reported Data and Recall Bias**:** Many of the key measures (like "change in expenditure" or "impulse purchase frequency") are based on self-reports rather than objective financial data. Respondents' perception of their spending increase might be skewed or inaccurate. Some might overestimate increases because they *feel* they are spending more (perhaps conflating more transactions with more total spending), while others might underestimate due to not tracking diligently. Attempted to mitigate this by focusing on the respondent's own perceived change (since perception itself drives satisfaction or worry), but it does mean lack of precise quantitative measurement of how much their spending changed (e.g., cannot say their expenditure rose by X%). Also, recall bias is a factor – respondents had to recall their "before fintech" behaviour which might be fuzzy especially for those who adopted fintech gradually over years.

- Causality and Time Factors**:** The study is cross-sectional and cannot definitively prove causality that fintech *caused* the spending changes; it can only strongly suggest it in line with user attributions and the logical sequence. There could be other coincident factors: for instance, young people's spending tends to increase as their income grows with age/career, irrespective of fintech – some of the reported "increase" might be due to life stage (e.g., a student now in a job spends more simply because they earn more

now, and they also happen to use fintech). Tried to frame questions to specifically attribute to digital payments (and the majority did attribute changes to that), but without a controlled experimental or longitudinal design, causality is inferred, not confirmed. Another related limitation is that it did not capture *when* each respondent started using fintech heavily; someone using since 2017 vs. someone who started in 2022 might have different adaptation levels. A longer-term user might have adjusted their behaviour after an initial surge (some respondents indeed reported trying to be cautious now).

- Focus on Certain Fintech Tools: This study narrowed in on payments (UPI, wallets) and BNPL. Fintech is a broad domain including other innovations like robo-advisors, investment apps, insurance tech, etc. It was not examined whether, for example, middle-class consumers are saving or investing more due to fintech (which could be a positive counterbalance to spending). There are fintech apps that round up spends to invest or that encourage savings; the questionnaire did not cover those. So, the impact on overall financial well-being could have positive aspects didn't measure (if someone spends a bit more but also saves more thanks to fintech, the net might be okay). The lens was on expenditure, which was thoroughly covered, but the reader should note it's not the whole picture of financial behaviour.

- Urban Bias in Infrastructure**:** Delhi-NCR has excellent internet and payment infrastructure (QR codes everywhere, fast internet). In areas where fintech usage is hindered by patchy networks or fewer merchants accepting digital payments, the impact might be less pronounced. So, this study in a top-tier city might show a stronger effect than in a developing town where cash is still more in use due to necessity.

- Psychological Factors and Unmeasured Variables: It was not explicitly measured at individual differences such as self-control, financial literacy levels, or personality traits which could influence how fintech affects someone. It's possible that those who overspend more are naturally more impulsive or less experienced in budgeting. This data hints that fintech facilitated their impulses, but one could argue such individuals might overspend via other means too if given the chance. Without controlling for these traits, attributed a lot to fintech that is likely valid on average, but not uniformly for everyone. Some respondents did not increase spending – they might be more disciplined by nature. Treated the sample somewhat monolithically in analysis, which glosses over these nuances.

- Survey Instrument Limitations: While it tried to cover all relevant questions, some aspects might have benefitted from deeper questioning. For example, it was asked if spending increased but not by what magnitude or in what categories specifically (except broad use cases). The spending rose, but not if it was mostly on food, entertainment, etc. Qualitative responses indicate a range (some mentioned food delivery, others online shopping as temptations). A more detailed expenditure breakdown could be useful. Also, the Likert statements were limited; there could be other feelings (like stress about overspending, or enjoyment of spending) didn't directly ask. A few respondents in comments mentioned that digital spending is "fun/easy" – a psychological gratification aspect didn't formally measure.

Acknowledging these limitations, the study's findings should be viewed as indicative rather than definitive. They strongly point to certain trends among a specific group. Future research

could extend this work by using more representative sampling, incorporating objective financial data (like actual account statements with user consent), and considering a broader set of fintech tools and outcomes (including savings/investment behaviour). Despite the limitations, the alignment of the results with theory and other observations builds confidence that the core insights are meaningful. It was believed the benefits of the study – shedding light on consumer experiences in the fintech era – provide a valuable foundation, with the limitations providing direction for careful interpretation and further inquiry.

CHAPTER 5

CONCLUSION

This research set out to explore the impact of fintech innovations on the expenditure patterns of middle-income consumers in Delhi-NCR. Through a comprehensive survey and analysis, this has painted a detailed picture of how the proliferation of digital payments and related fintech services is influencing consumer behaviour within this demographic. In summary, the evidence suggests that fintech has indeed become a catalyst for change in spending habits – generally making transactions faster, easier, and more frequent, which in turn has led many consumers to spend more overall and indulge in spur-of-the-moment purchases. At the same time, fintech has provided tools for better financial tracking and access to convenient credit, which are double-edged advantages requiring prudent use.

Key findings recap**:** A majority of surveyed middle-income individuals reported that after adopting fintech (like UPI and mobile wallets), their monthly expenditures increased, and their transaction frequency rose. Approximately 81% acknowledged more impulse buying, linking this directly to the effortless nature of digital payments. The middle-income group, which traditionally has been value-conscious, is experiencing a subtle shift toward a more consumption-oriented mindset facilitated by technology. Fintech credit options (BNPL) have seen significant uptake, illustrating the allure of "buy now, pay later" in this segment, though not without some instances of repayment difficulties. These outcomes align with both global trends and the theoretical frameworks of consumer behaviour – reinforcing the idea that reducing friction in payments can lead to greater consumption (the Spendception effect).

Objective-wise, the study successfully met its aims: Profiled fintech adoption (finding extremely high usage rates of UPI and wallets). Analyzed changes in payment behaviour (confirming a marked shift from cash to digital and increased transaction counts). Documented expenditure pattern shifts (finding more spending and impulses in discretionary areas like e-commerce and food orders, as per qualitative feedback). Examined behaviour al factors (finding that convenience and rewards drive usage, whereas lack of "payment pain" drives overspending). Also touched on financial well-being issues (highlighting the need for caution with BNPL to avoid debt). Finally, it placed these findings in context with broader patterns – noting that the micro-level data echoes macro-observations such as India's high fintech adoption and rising digital transaction volumes (Digital Payments: Latest News Headlines, Videos and Photo Galleries on Digital Payments | Business Standard), while also raising the flag that consumer education needs to keep pace with technological adoption.

Implications: The results carry several implications for stakeholders. For policymakers and financial educators, there is a clear mandate to integrate financial literacy efforts with the digital literacy wave. As India pushes toward a cashless economy, educating citizens on budgeting and self-control in a cashless context becomes vital. For fintech companies, the insights present an opportunity and responsibility to innovate in user-centric ways – for instance, adding features that help users budget and avoid negative outcomes can differentiate and improve their product offering. For the middle-class consumers themselves, the study implicitly suggests a need for greater self-awareness: being cognizant that the convenience they enjoy can come at a cost to their wallets if not managed.

Contribution to knowledge: This research contributes to the literature by filling a gap on how fintech affects behaviour in a specific, important demographic. Prior studies often looked at either overall adoption rates or financial inclusion among the unbanked; the focus on

expenditure patterns of the already included middle class provides novel insights. It underscores that even those who are not financially excluded can experience significant changes (not always positive) in financial behaviour due to technology. Also showcased a methodology to quantify such behaviour al changes via surveys, which can be replicated or expanded in other contexts. The alignment (and in some cases, quantification) of concepts like reduced payment friction leading to overspending provides empirical support at a granular level to theories that were largely conceptual or anecdotal in the Indian context.

Limitations revisited: Candidly acknowledged the study's limitations – particularly the sample bias toward young, tech-savvy individuals – which means one should be cautious in extrapolating the exact magnitudes to the entire middle-income population. However, it was believed the direction of effects observed (increased spending, impulse buying) is likely to hold broadly, even if the extent might vary among different sub-groups. Future research can build on this work by tracking actual spending data or using experimental designs (for example, giving one group of people a budgeting app along with UPI and another group only UPI, to see differences). Another fruitful avenue would be to study long-term adjustments: do people who initially overspend with fintech learn to moderate over time? Some hints of that emerged (those who became cautious), but longitudinal data would be valuable.

Final thoughts: Fintech innovations are here to stay and will only grow more influential with advancements like digital currencies, more credit platforms, and AI-driven personalized finance. The middle class stands to benefit immensely – in convenience, access, and opportunities – but also faces new challenges in maintaining financial discipline. The story unfolding in Delhi-NCR is likely a precursor to what other parts of India (and similar emerging economies) will experience as fintech penetration deepens. The key takeaway from this study is that human financial behaviour is adaptable but needs guidance: the tools used changed the way it behaved, and must adapt the strategies accordingly. As one respondent aptly summarized in a follow-up interview, *"UPI has made life so easy – I just have to be careful that I don't misuse that ease. I'm learning to keep track because it's easy to lose track."*

Ultimately, the goal is to harness fintech as an enabler of prosperity and convenience without letting it become a trap for over-consumption or debt. This research, it was hoped, has shed light on both sides of that coin for the middle-income segment and will spur stakeholders to take informed actions. With targeted interventions (by fintech designers, educators, and users themselves), the middle class can enjoy the efficiencies of digital finance while staying in control of their financial well-being. In conclusion, fintech is reshaping expenditure patterns in notable ways – the task is to ensure that this reshaping leads to healthy financial habits and improved economic outcomes for households in the long run, rather than regretful overspending or financial stress. The balance can be achieved by combining the power of technology with the wisdom of prudent financial management.

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(Note: URLs for online news sources and DOIs for articles have been provided where applicable. All citations in text correspond to the reference list entries above. Data sources like the Survey questionnaire and dataset are listed in the appendix/user files.)

7. ANNEXURE

Understanding the impact of Fintech Innovations on Middle-Income Group's Expenditure Patterns in Delhi-NCR

This survey is designed to quantitatively and qualitatively assess user experiences, spending changes, behavioral patterns, and attitudes related to fintech usage in Delhi NCR. This is for academic purposes only.

* Indicates required question

Age: *

- ◯ 18-25
- ◯ 26-35
- ◯ 36-45
- ◯ 46-60
- ◯ 60+

Gender: *

- ◯ Male
- ◯ Female
- ◯ Other/Prefer not to say

Occupation: *

- ◯ Salaried Employee
- ◯ Self-employed
- ◯ Student
- ◯ Homemaker
- ◯ Retired

Annual Household Income: *

- ◯ 5-10 lakhs
- ◯ 10-15 lakhs
- ◯ 15 lakhs +

Education Level: *

- ◯ High School
- ◯ Graduate
- ◯ Post Graduate
- ◯ Professional Degree

Which of the following fintech services do you regularly use? *(Select all that apply)*

- ☐ UPI (e.g., Google Pay, PhonePe)
- ☐ Mobile Wallets (e.g., Paytm, Amazon Pay)
- ☐ BNPL (e.g., ZestMoney, LazyPay, Simpl)
- ☐ Credit Cards
- ☐ Expense Tracking Apps

How often do you use UPI for payments? *

- ◯ Multiple times a day
- ◯ Once a day
- ◯ Few times a week
- ◯ Rarely
- ◯ Never

Where do you typically use digital payments? *(Select all that apply)*

- ☐ Grocery stores
- ☐ Peer Transfers
- ☐ Restaurants
- ☐ E-commerce
- ☐ Utilities

Since using digital payments, how has your average monthly expenditure changed? *

- ◯ Increased significantly
- ◯ Increased slightly
- ◯ No change
- ◯ Decreased

How has your frequency of transactions changed? *

- ◯ I make more small purchases now
- ◯ No major change
- ◯ I've become more cautious in spending

How often do you make impulse purchases since adopting UPI/wallets? *

- ◯ Frequently
- ◯ Sometimes
- ◯ Rarely
- ◯ Never

Did you ever use BNPL(Buy Now Pay Later) or EMI to finance purchases? *

- ◯ Yes, frequently
- ◯ Occasionally
- ◯ Once or twice
- ◯ Never

Have you ever missed a BNPL or EMI payment? *

- ◯ Yes
- ◯ No
- ◯ Not Applicable

Rate the importance of the following factors when making purchase decisions (1 = Not Important, 5 = Very Important). *

	1	2	3	4	5
Digital payments are more convenient than cash.	○	○	○	○	○
I feel I spend more now due to the ease of payments.	○	○	○	○	○
Cashback and rewards motivate me to use fintech more often.	○	○	○	○	○
I find it easier to track my spending due to digital apps.	○	○	○	○	○
Sometimes I lose track of my expenses because digital payments feel effortless.	○	○	○	○	○

Submit

Clear form

8. PLAGIARISM REPORT