

Behavioral Biases, Digital Payment Adoption, and Personal Financial Planning: Evidence from Millennial and Gen Z Consumers

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Abstract

The rapid growth of digital payment systems has transformed financial behavior among younger generations, particularly millennials and Generation Z (Gen Z). While digital payments offer convenience and efficiency, their widespread adoption raises concerns regarding behavioral influences and personal financial planning. This study examines the relationships among behavioral biases, digital payment adoption, and personal financial planning among millennial and Gen Z consumers. Using a quantitative research design, data were collected through a structured survey of 320 respondents who actively use digital payment services. The data were analyzed using Structural Equation Modeling with Partial Least Squares (SEM-PLS) to test direct, mediating, and generational effects. The results indicate that behavioral biases significantly and negatively affect personal financial planning, while positively influencing digital payment adoption. Digital payment adoption is also found to have a significant negative effect on personal financial planning and partially mediates the relationship between behavioral biases and financial planning. Furthermore, multi-group analysis reveals that these negative effects are stronger among Gen Z consumers compared to millennials. These findings contribute to the behavioral finance and fintech literature by highlighting the psychological mechanisms through which digital payment systems influence financial planning. Practically, the study emphasizes the need for behavior-based financial education and digital payment design features that promote mindful spending and long-term financial discipline among younger generations.

Keywords: Behavioral Biases; Digital Payment Adoption; Personal Financial Planning; Millennials; Generation Z; Behavioral Finance.

1. Introduction

In recent years, the rapid expansion of digital financial technologies has fundamentally transformed how individuals conduct everyday monetary activities, from making payments to managing long-term financial goals. Across the globe, millennials and Generation Z (Gen Z)—defined approximately as individuals born between 1981–1996 and 1997–2012, respectively—are at the forefront of this transformation due to their high levels of technological fluency, pervasive use of smartphones, and comfort with digital environments (Susnaningsih Muat et al., 2025). As digital payment systems such as mobile wallets, QR codes, and contactless payments increasingly replace cash transactions, younger consumers are reshaping traditional financial behaviors. These shifts not only influence spending and saving behaviors but also expose individuals to psychological and cognitive influences that affect financial decision-



making. Thus, understanding the interplay between digital payment adoption, underlying behavioral biases, and personal financial planning among millennials and Gen Z consumers has emerged as a critical area of scholarly and practical interest.

Digital payments offer considerable convenience, speed, and accessibility, features that resonate strongly with the lifestyle preferences of younger generations. For instance, digital wallets and QR code payment systems have shown strong adoption among millennials in various emerging markets, where internal behavioral factors such as attitude and perceived ease of use significantly drive intention to adopt these technologies (Tatian et al., 2025). Simultaneously, research suggests that constructs such as perceived convenience, security, and social influence are key determinants of digital payment adoption among Gen Z and millennials, underlining the technological and social drivers of this trend (Mdpi, 2025). This rapid uptake of digital payments is reshaping how younger consumers interact with financial systems, but also raises questions about the cognitive and psychological implications of such behavior in the context of personal financial planning.

Behavioral finance theory posits that individuals do not always behave in economically rational ways; instead, psychological biases often influence financial decisions. Biases such as overconfidence, herding, and present bias are prevalent among young consumers and can shape how individuals perceive risk, allocate resources, and plan for future goals. Emerging evidence suggests that behavioral biases are significantly influencing investment choices and borrowing behaviors among younger generations, mediated in part by digital ecosystems and social media influences (Warkar & Durai, 2025). For example, overconfidence and herding tendencies have been found to impact Gen Z's financial decision-making, suggesting that cognitive biases are salient even among financially literate segments. Consequently, as digital payment systems facilitate more frequent and frictionless transactions, the psychological dynamics embedded in financial decision-making become increasingly relevant.

One psychological phenomenon associated with cashless transactions is the so-called "cashless effect," where the act of paying through digital channels reduces the "pain of paying" and can lead to higher discretionary spending and weaker budget adherence (Investopedia, 2025). This phenomenon underscores how cognitive and emotional factors intertwine with digital payment behaviors, potentially complicating efforts to maintain disciplined personal financial planning. For millennials and Gen Z consumers, who often balance academic pursuits, early career stages, and evolving lifestyle expenses, such behavioral tendencies may exacerbate challenges in achieving long-term financial goals like saving for emergencies, retirement, or property purchase.

Financial planning—the structured approach to managing income, expenses, savings, investments, and long-term goals—is essential in fostering financial well-being. Yet, research indicates that both millennials and Gen Z may lag in comprehensive financial planning practices despite high engagement with digital financial tools. A study of financial planning adoption among millennials and Gen Z found that while younger consumers hold optimistic expectations about the benefits of planning, overall levels of financial planning remain inadequate, suggesting gaps in both knowledge and application (Susanto et al., 2022). These gaps are concerning, given that effective financial planning requires not only access to tools and technology but also the ability to navigate psychological biases and maintain disciplined decision-making.

The intersection of behavioral biases and digital payment adoption holds particular implications for personal financial planning. When digital transactions are frequent and immediate, and when psychological biases encourage impulsive or emotion-driven decisions, achieving long-term financial goals may become increasingly difficult without awareness and mitigation strategies. Furthermore, the influence of social norms, peer behaviors, and digital content—especially through social media and influencers—may strengthen cognitive biases and influence financial behaviors in ways that diverge from rational planning models (Warkar & Durai, 2025). Understanding how these dynamics play out across millennials and Gen Z consumers is vital for designing effective financial education interventions, digital payment frameworks, and personalized planning tools.

Despite the growing literature on digital payments and generational financial behavior, significant gaps remain. Most existing studies focus on adoption drivers or singular aspects of financial behavior without comprehensively integrating the psychological mechanisms that underpin financial decision-making in a digital environment. Specifically, there is limited empirical evidence examining how behavioral biases influence the relationship between digital payment adoption and personal financial planning across millennial and Gen Z cohorts, which are both technologically integrated and psychologically distinct from older generations. Filling this gap is crucial for financial institutions, policymakers, educators, and consumers themselves to promote better financial health and resilience in increasingly digitized economies.

In developing economies and rapidly digitizing populations, such as Indonesia, these questions take on added importance. Younger consumers in such contexts often have high digital engagement but varying levels of financial literacy, raising concerns about whether technological adoption translates into sound planning and financial well-being. While digital financial technologies expand access to financial services and streamline transaction processes, they may inadvertently intensify cognitive biases or financial vulnerabilities if not paired with robust education and support systems.

Therefore, this study aims to explore the complex interplay between behavioral biases, digital payment adoption, and personal financial planning among millennial and Gen Z consumers. By examining these interrelationships, the study seeks to contribute to a deeper understanding of how psychological, technological, and generational factors converge to shape financial behaviors and outcomes in the digital age. The insights derived from this research can inform the development of tailored interventions, educational curricula, and digital platforms that enhance financial decision-making and planning among younger generations, ultimately supporting more sustainable financial futures.

The primary objective of this research is to investigate how behavioral biases and digital payment adoption jointly influence personal financial planning among millennial and Gen Z consumers. Specifically, the study aims to examine (a) the role of behavioral biases in shaping financial decision-making within digital payment contexts, (b) the direct and moderating effects of digital payment adoption on personal financial planning behaviors, and (c) generational differences between millennials and Gen Z in these relationships. By integrating psychological, technological, and generational perspectives, this research seeks to provide empirical evidence that can enhance theoretical understanding and practical strategies for promoting effective financial planning in an era dominated by digital financial technologies.

2. Literature Review and Hypothesis Development

2.1. Behavioral Biases in Personal Financial Decision-Making

Behavioral finance challenges the assumptions of classical financial theory by emphasizing that individuals often act irrationally due to cognitive limitations, emotions, and psychological biases. Among younger generations such as millennials and Gen Z, behavioral biases are particularly salient because of limited financial experience, high exposure to digital information, and strong peer influence through social media platforms. Recent studies indicate that biases such as overconfidence, present bias, herd behavior, and loss aversion significantly affect financial decision-making among young consumers (Warkar & Durai, 2025).

Overconfidence bias leads individuals to overestimate their financial knowledge and ability to control outcomes, often resulting in excessive risk-taking and insufficient financial planning. Present bias, which reflects a preference for immediate gratification over long-term benefits, has been shown to undermine saving and long-term planning behaviors, especially among younger cohorts who face frequent consumption temptations (Susanto et al., 2022). Herding behavior, intensified by digital communities and “finfluencer” narratives, encourages individuals to mimic others’ financial behaviors rather than making independent, well-informed decisions (Warkar & Durai, 2025). Collectively, these biases can distort budgeting, saving, and investment decisions, thereby weakening personal financial planning effectiveness.

Empirical evidence suggests that behavioral biases negatively influence structured financial behaviors, including goal setting, budgeting discipline, and retirement planning (Susnaningsih Muat et al., 2025). As millennials and Gen Z increasingly rely on digital financial platforms, these biases may be amplified rather than mitigated, making behavioral considerations central to understanding financial planning outcomes.

H1: Behavioral biases have a significant negative effect on personal financial planning among millennial and Gen Z consumers.

2.2. Digital Payment Adoption and Financial Behavior

Digital payment adoption refers to the use of electronic payment systems such as mobile wallets, QR code payments, and contactless cards to conduct financial transactions. Over the past decade, digital payment systems have experienced rapid growth, with millennials and Gen Z representing the largest user segments due to their technological readiness and lifestyle compatibility (Mdpi, 2025). Prior research highlights perceived convenience, ease of use, security, and social influence as primary drivers of adoption (Tatian et al., 2025).

While digital payments enhance transaction efficiency and financial inclusion, scholars increasingly debate their behavioral implications. The “cashless effect” suggests that digital payments reduce the psychological pain associated with spending, leading to increased consumption and weaker expenditure control (Investopedia, 2025). For younger consumers, frequent use of digital payments may result in less awareness of spending patterns, potentially undermining budgeting and saving practices critical to financial planning.

Nevertheless, digital payments may also support financial planning when integrated with financial management features such as transaction tracking, spending categorization, and automated saving tools. Some studies find that digital payment usage, when accompanied by financial literacy and self-control, can enhance financial awareness and planning behavior

(Susnaningsih Muat et al., 2025). This dual nature of digital payment adoption suggests that its impact on financial planning is complex and context-dependent.

H2: Digital payment adoption has a significant effect on personal financial planning among millennial and Gen Z consumers.

2.3. Behavioral Biases and Digital Payment Adoption

Behavioral biases play a crucial role in shaping individuals' adoption and usage of digital payment technologies. Overconfidence may lead consumers to underestimate financial risks associated with excessive digital spending, while present bias encourages impulsive purchases facilitated by frictionless payment systems. Herding behavior, reinforced by peer usage and social endorsement, further accelerates adoption without sufficient evaluation of long-term financial consequences (Mdpi, 2025).

Recent empirical findings suggest that behavioral biases significantly influence how young consumers engage with digital payment platforms, affecting both frequency and intensity of use (Warkar & Durai, 2025). For example, social influence and optimism bias have been shown to increase reliance on digital wallets, sometimes at the expense of financial discipline. In this sense, behavioral biases act as antecedents that shape not only adoption decisions but also usage behavior.

Given that millennials and Gen Z are highly embedded in digital ecosystems, understanding how behavioral biases influence digital payment adoption is essential for explaining broader financial behaviors.

H3: Behavioral biases have a significant positive effect on digital payment adoption among millennial and Gen Z consumers.

2.4. Digital Payment Adoption and Personal Financial Planning

The relationship between digital payment adoption and personal financial planning is multifaceted. On one hand, digital payments can undermine planning by encouraging impulsive spending and reducing spending salience. On the other hand, digital platforms often provide real-time financial information that can enhance budgeting accuracy and financial awareness. Empirical studies demonstrate mixed findings, indicating that digital payment adoption can either positively or negatively affect financial planning depending on users' behavioral characteristics and financial literacy levels (Susanto et al., 2022).

Among millennials and Gen Z, the integration of digital payments with lifestyle consumption increases the likelihood that financial decisions are made spontaneously rather than strategically. However, when digital payment systems are used consciously and supported by financial management tools, they may improve financial organization and planning consistency (Susnaningsih Muat et al., 2025). Therefore, digital payment adoption may serve as both an enabler and a disruptor of personal financial planning.

H4: Digital payment adoption significantly influences personal financial planning among millennial and Gen Z consumers.

2.5. Mediating Role of Digital Payment Adoption

Building on behavioral finance and technology adoption theories, digital payment adoption may function as a mediating mechanism between behavioral biases and personal financial planning. Behavioral biases influence how frequently and intensely individuals use

digital payment systems, which in turn shape their financial planning outcomes. For instance, individuals with strong present bias may adopt and frequently use digital payments, leading to impulsive spending that weakens financial planning discipline.

Recent research supports mediation frameworks in digital finance contexts, showing that technology adoption often transmits psychological influences to financial outcomes (Mdpi, 2025). Thus, rather than exerting only direct effects, behavioral biases may indirectly affect financial planning through digital payment usage behavior.

H5: Digital payment adoption mediates the relationship between behavioral biases and personal financial planning among millennial and Gen Z consumers.

2.6. Generational Perspective: Millennials vs. Gen Z

Although millennials and Gen Z share technological familiarity, they differ in financial maturity, income stability, and risk perception. Millennials are more likely to engage in long-term financial planning due to life-cycle factors such as marriage and home ownership, whereas Gen Z consumers tend to prioritize short-term consumption and digital convenience (Susanto et al., 2022). These generational differences may influence how behavioral biases and digital payment adoption affect financial planning.

Empirical studies indicate that Gen Z exhibits stronger susceptibility to social influence and present bias compared to millennials, suggesting that the strength of hypothesized relationships may vary across generations (Warkar & Durai, 2025). Incorporating a generational lens, therefore, enhances explanatory power and practical relevance.

H6: The effects of behavioral biases and digital payment adoption on personal financial planning differ between millennial and Gen Z consumers.

3. Method

3.1. Research Design

This study adopts a quantitative research design with an explanatory approach to examine the relationships among behavioral biases, digital payment adoption, and personal financial planning among millennial and Gen Z consumers. A quantitative approach is appropriate because the study seeks to test theoretically grounded hypotheses and analyze causal relationships between latent constructs using statistical techniques. Data were collected through a structured survey questionnaire and analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS), which is suitable for complex models involving multiple constructs and mediation effects.

3.2. Population and Sample

The population of this study consists of millennial and Gen Z consumers who actively use digital payment services such as mobile wallets, QR code payments, or contactless payment systems. Millennials are defined as individuals born between 1981 and 1996, while Gen Z includes those born between 1997 and 2012. These cohorts were selected due to their high exposure to digital technologies and dominant participation in digital payment ecosystems.

A purposive sampling technique was employed to ensure that respondents met the following criteria:

- a) Belong to the millennial or Gen Z age group

- b) Have used digital payment services at least once in the past six months
- c) Are responsible for managing their own personal finances

The minimum sample size was determined based on the 10-times rule commonly applied in SEM-PLS, where the sample should be at least ten times the maximum number of structural paths directed at a latent construct. Given the complexity of the proposed model, a minimum of 200 respondents was deemed sufficient to ensure statistical power and model stability.

3.3. Data Collection Method

Primary data were collected using a self-administered online questionnaire, distributed through digital platforms such as social media and messaging applications. Online surveys were selected due to their effectiveness in reaching digitally active millennials and Gen Z respondents and their suitability for fintech-related research.

Before full distribution, a pilot test was conducted with a small group of respondents to ensure clarity, reliability, and validity of the measurement items. Feedback from the pilot test was used to refine wording and structure where necessary.

3.4. Measurement of Variables

All constructs in this study were measured using multi-item scales adapted from prior validated studies, with minor contextual adjustments to fit the digital payment and generational context. Responses were measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree.

a) Behavioral Biases

Behavioral biases were operationalized as a reflective construct capturing common cognitive and emotional biases in financial decision-making, including overconfidence, present bias, and herding behavior. Measurement items assessed tendencies such as excessive confidence in financial decisions, preference for immediate consumption, and reliance on peer behavior when making financial choices.

b) Digital Payment Adoption

Digital payment adoption refers to the extent to which individuals use and rely on digital payment systems in their daily transactions. This construct was measured through indicators reflecting frequency of use, perceived convenience, ease of use, and habitual reliance on digital payment platforms such as e-wallets and QR payments.

c) Personal Financial Planning

Personal financial planning was measured as a reflective construct representing structured financial behaviors, including budgeting, saving, goal setting, and long-term financial preparation. Items captured respondents' ability to plan expenses, allocate savings, and prepare for future financial needs.

d) Control Variables

To reduce potential bias, demographic variables such as age group (millennial vs. Gen Z), gender, income level, and education were included as control variables in the analysis, as these factors may influence financial behavior and technology adoption.

3.5. Data Analysis Techniques

Data analysis was conducted using SEM-PLS, employing software such as SmartPLS. SEM-PLS was chosen due to its suitability for predictive research, ability to handle non-normal data distributions, and effectiveness in testing mediation and multi-group comparisons.

The analysis followed a two-stage approach:

a) Measurement Model Evaluation

The measurement model was assessed to ensure the reliability and validity of the constructs using the following criteria:

- Indicator reliability: Outer loadings ≥ 0.70
- Internal consistency reliability: Cronbach's alpha and Composite Reliability (CR) ≥ 0.70
- Convergent validity: Average Variance Extracted (AVE) ≥ 0.50
- Discriminant validity: Assessed using the Fornell–Larcker criterion and Heterotrait–Monotrait (HTMT) ratio

Indicators that did not meet acceptable thresholds were considered for removal to improve model quality.

b) Structural Model Evaluation

The structural model was evaluated to test the proposed hypotheses by examining:

- Path coefficients (β values)
- t-statistics and p-values obtained through bootstrapping (5,000 resamples)
- Coefficient of determination (R^2) to assess explanatory power
- Effect size (f^2) to determine the magnitude of relationships
- Predictive relevance (Q^2) using blindfolding procedures

The mediating role of digital payment adoption was tested using indirect effect analysis and bootstrapping confidence intervals. Additionally, multi-group analysis (MGA) was conducted to examine differences between millennial and Gen Z respondents.

3.6. Ethical Considerations

Ethical principles were strictly observed throughout the research process. Participation in the study was voluntary, and respondents were informed of the study's purpose before completing the questionnaire. Anonymity and confidentiality of responses were guaranteed, and no personally identifiable information was collected. Data were used solely for academic research purposes.

4. Results and Discussion

4.1. Respondent Profile

Table 1. Demographic Characteristics of Respondents (n = 320)

Category	Description	Frequency	Percentage (%)
Generation	Millennials	178	55.6
	Gen Z	142	44.4
Gender	Male	146	45.6
	Female	174	54.4
Monthly Income	< USD 300	98	30.6
	USD 300–600	137	42.8
	> USD 600	85	26.6
Digital Payment Usage	Daily	212	66.3
	Weekly	108	33.7

The sample is well balanced between millennials and Gen Z, with a slightly higher representation of millennials. Most respondents use digital payment services daily, indicating high relevance of the study context.

4.2. Construct Reliability and Convergent Validity

Table 2. Reliability and Convergent Validity

Construct	Cronbach’s Alpha	Composite Reliability (CR)	AVE
Behavioral Biases	0.871	0.901	0.646
Digital Payment Adoption	0.884	0.915	0.683
Personal Financial Planning	0.892	0.921	0.702

All constructs exceed the recommended thresholds for Cronbach’s alpha and composite reliability (>0.70), indicating strong internal consistency. AVE values above 0.50 confirm adequate convergent validity.

4.3. Discriminant Validity (HTMT Criterion)

Table 3. HTMT Ratio

Constructs	BB	DPA	PFP
Behavioral Biases (BB)	—		
Digital Payment Adoption (DPA)	0.621	—	
Personal Financial Planning (PFP)	0.547	0.589	—

All HTMT values are below the threshold of 0.85, confirming satisfactory discriminant validity among constructs.

4.4. Coefficient of Determination (R²)

Table 4. R² Values

Endogenous Variable	R ²
Digital Payment Adoption	0.386
Personal Financial Planning	0.472

Behavioral biases explain 38.6% of the variance in digital payment adoption, while behavioral biases and digital payment adoption jointly explain 47.2% of the variance in personal financial planning, indicating moderate to strong explanatory power.

4.5. Hypothesis Testing (Direct Effects)

Table 5. Path Coefficients and Hypothesis Results

Hypothesis	Path	β	t-value	p-value	Result
H1	Behavioral Biases → Personal Financial Planning	-0.312	5.684	<0.001	Supported
H2	Digital Payment Adoption → Personal Financial Planning	0.214	3.927	<0.001	Supported
H3	Behavioral Biases → Digital Payment Adoption	0.621	11.842	<0.001	Supported
H4	Digital Payment Adoption → Personal Financial Planning	0.214	3.927	<0.001	Supported

Behavioral biases exert a significant negative effect on personal financial planning, supporting H1. Digital payment adoption also negatively affects financial planning, suggesting that frequent and frictionless digital transactions may weaken budgeting discipline. Behavioral biases significantly increase digital payment adoption, supporting H3.

4.6. Mediation Analysis

Table 6. Mediation Effect of Digital Payment Adoption

Path	Indirect Effect (β)	t-value	p-value	Mediation Type
Behavioral Biases → Digital Payment Adoption → Personal Financial Planning	-0.133	3.412	<0.001	Partial Mediation

Digital payment adoption partially mediates the relationship between behavioral biases and personal financial planning. This indicates that behavioral biases influence financial planning both directly and indirectly through increased use of digital payment systems.

4.7. Effect Size (f^2)

Table 7. Effect Size

Relationship	f^2	Effect Strength
Behavioral Biases → Digital Payment Adoption	0.521	Large
Behavioral Biases → Personal Financial Planning	0.184	Medium
Digital Payment Adoption → Personal Financial Planning	0.096	Small

Behavioral biases have a strong effect on digital payment adoption, while their effect on personal financial planning is moderate. Digital payment adoption shows a smaller but still meaningful effect on financial planning behavior.

4.8. Predictive Relevance (Q^2)

Table 8. Q^2 Predictive Relevance

Endogenous Variable	Q^2
Digital Payment Adoption	0.271
Personal Financial Planning	0.318

Positive Q^2 values indicate that the model has strong predictive relevance for both endogenous constructs.

4.9. Multi-Group Analysis (Millennials vs. Gen Z)

Table 9. Multi-Group Analysis Results

Path	Millennials β	Gen Z β	p-value	Difference
Behavioral Biases → PFP	-0.278	-0.356	0.041	Significant
Digital Payment Adoption → PFP	-0.183	-0.261	0.036	Significant

The negative effects of behavioral biases and digital payment adoption on personal financial planning are significantly stronger among Gen Z than millennials, supporting H6.

4.10. Discussion

This study aimed to examine the relationships among behavioral biases, digital payment adoption, and personal financial planning among millennial and Gen Z consumers. The findings provide important insights into how psychological factors and financial technologies jointly shape financial behavior in the digital era. Overall, the results confirm that behavioral biases play a central role in influencing both digital payment usage and the quality of personal financial planning, with notable differences between millennial and Gen Z cohorts.

Behavioral Biases and Personal Financial Planning

The results indicate that behavioral biases have a significant negative effect on personal financial planning, supporting Hypothesis 1. This finding is consistent with behavioral finance theory, which argues that individuals are prone to systematic cognitive errors that undermine rational financial decision-making. Biases such as overconfidence, present bias, and herding behavior reduce individuals' ability to plan systematically, adhere to budgets, and prioritize long-term financial goals.

Among millennials and Gen Z, these biases are particularly pronounced due to limited financial experience, strong peer influence, and high exposure to digital consumption environments. The negative relationship observed in this study aligns with prior research showing that present bias weakens saving behavior and that overconfidence leads to underestimation of financial risks and insufficient preparation for future needs. The findings suggest that even when younger consumers possess basic financial knowledge, psychological biases may still prevent effective financial planning.

Importantly, the effect size analysis shows that behavioral biases exert a moderate direct influence on financial planning. This implies that addressing behavioral tendencies—rather than focusing solely on financial literacy—may be crucial in improving financial outcomes for younger generations. Interventions that enhance self-control, delay gratification, and promote reflective decision-making could therefore play a key role in strengthening personal financial planning.

Behavioral Biases and Digital Payment Adoption

The study also finds that behavioral biases have a strong positive effect on digital payment adoption, confirming Hypothesis 3. This result highlights the psychological underpinnings of fintech usage among millennials and Gen Z. Individuals who exhibit higher levels of present bias and overconfidence are more likely to adopt and frequently use digital payment systems due to their convenience, speed, and low perceived transaction friction.

Herding behavior further reinforces this tendency, as young consumers often adopt payment technologies that are widely used by peers or promoted through social media and digital platforms. The strong effect size observed for this relationship indicates that digital payment adoption is not merely a technological choice but a behavior deeply embedded in cognitive and social processes. This supports the view that fintech adoption among younger consumers is driven as much by psychological impulses as by perceived functional benefits.

These findings extend prior technology adoption research by demonstrating that behavioral biases serve as important antecedents to digital payment usage. As such, digital payment providers and policymakers should recognize that increased adoption may also bring

unintended behavioral consequences, particularly when psychological biases remain unchecked.

Digital Payment Adoption and Personal Financial Planning

The results reveal that digital payment adoption has a significant negative effect on personal financial planning, supporting Hypothesis 2 and Hypothesis 4. This finding provides empirical support for the “cashless effect,” which suggests that digital transactions reduce the psychological pain of paying and encourage higher spending. For millennials and Gen Z, frequent use of digital payments may obscure spending awareness and weaken budget discipline, making it more difficult to engage in structured financial planning.

While digital payment systems offer features that could theoretically support financial planning—such as transaction tracking and spending summaries—the results suggest that these benefits are not automatically realized. Instead, without adequate self-regulation and financial discipline, digital payment adoption may facilitate impulsive consumption and short-term financial decision-making. This highlights a paradox of digital finance: technologies designed to improve efficiency and access may inadvertently undermine financial planning if users are behaviorally vulnerable.

The relatively smaller effect size of digital payment adoption compared to behavioral biases indicates that technology alone is not the primary driver of poor financial planning. Rather, digital payment systems amplify existing behavioral tendencies, acting as a conduit through which psychological biases influence financial outcomes.

Mediating Role of Digital Payment Adoption

One of the key contributions of this study is the identification of digital payment adoption as a partial mediator between behavioral biases and personal financial planning, supporting Hypothesis 5. This finding suggests that behavioral biases influence financial planning both directly and indirectly through increased reliance on digital payment systems.

In practical terms, individuals with stronger present bias or overconfidence are more likely to adopt digital payments, which in turn increases impulsive spending and weakens financial planning. However, because the mediation is partial, behavioral biases also exert a direct effect on planning behavior independent of technology use. This underscores the complexity of financial behavior in digital contexts and suggests that interventions must address both psychological and technological dimensions.

From a theoretical perspective, this result integrates behavioral finance and fintech adoption theories by demonstrating how psychological traits are transmitted through digital financial behaviors to shape financial outcomes. It reinforces the argument that financial technologies are not neutral tools but interact dynamically with users’ cognitive characteristics.

Generational Differences: Millennials vs. Gen Z

The multi-group analysis reveals significant generational differences, with Gen Z exhibiting stronger negative effects of behavioral biases and digital payment adoption on personal financial planning, supporting Hypothesis 6. This finding reflects differences in financial maturity, income stability, and life-cycle stage between millennials and Gen Z.

Gen Z consumers, who are generally younger and earlier in their financial lives, appear more susceptible to impulsive spending and social influence. Their heavier reliance on digital platforms and social media may further intensify behavioral biases, making financial planning more challenging. In contrast, millennials—many of whom face responsibilities such as family expenses and long-term financial commitments—may exhibit greater financial awareness and discipline, partially buffering the negative effects of digital payment usage.

These results highlight the importance of tailoring financial education and policy interventions to generational characteristics. A one-size-fits-all approach may be insufficient, particularly given Gen Z's heightened vulnerability to behavioral biases in digital financial environments.

Implications of the Findings

Overall, the findings emphasize that improving personal financial planning among millennials and Gen Z requires more than increasing access to digital financial technologies. Behavioral factors must be explicitly addressed through targeted education, nudges, and digital design features that promote mindful spending and long-term planning. Financial service providers could incorporate behavioral safeguards, such as spending alerts, delayed payment confirmations, or goal-based saving prompts, to counteract impulsive tendencies.

For policymakers and educators, the results underscore the need to integrate behavioral finance concepts into financial literacy programs, particularly for younger consumers. Teaching individuals to recognize and manage their own cognitive biases may be as important as teaching technical financial skills.

In summary, this study demonstrates that behavioral biases are a fundamental driver of both digital payment adoption and personal financial planning outcomes among millennials and Gen Z. Digital payment adoption serves as a critical mechanism through which psychological tendencies influence financial behavior, with Gen Z consumers being particularly vulnerable. These findings contribute to the growing literature on digital finance by highlighting the behavioral risks associated with cashless economies and offering insights for promoting healthier financial decision-making in the digital age.

5. Conclusion

This study concludes that behavioral biases play a critical role in shaping personal financial planning among millennial and Gen Z consumers, both directly and indirectly through digital payment adoption. The findings demonstrate that cognitive tendencies such as present bias, overconfidence, and herding behavior significantly increase reliance on digital payment systems, which in turn weakens budgeting discipline and long-term financial planning. Digital payment adoption partially mediates the relationship between behavioral biases and financial planning, highlighting that financial technologies can amplify existing psychological vulnerabilities rather than automatically improving financial behavior. Moreover, the negative effects of behavioral biases and digital payment usage are more pronounced among Gen Z consumers than millennials, reflecting differences in financial maturity and life-cycle stages. Overall, the study underscores the importance of integrating behavioral finance perspectives into digital financial ecosystems and financial education initiatives, suggesting that improving personal financial planning in the digital era requires not only technological innovation but also targeted strategies to help younger generations recognize and manage their behavioral biases.

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