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Payment Behavior Dynamics Using Mental Accounting Theory: The Moderating Effect of Self-Control

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Abstract: *Despite the burgeoning dominance of digital payments, there is a dearth of research exploring psychological factors that drive consumers to their excessive use as compared to conventional cash payments. This study fills the gap and examines the effect of different payment methods on consumer payment behavior through the lens of mental accounting theory. The study also introduces a moderation of self-control as a rational phenomenon that resists immediate temptations and avoids hasty payment decisions. Having a quantitative research design, the study collected primary data through structured questionnaires that were measured on a 7-point Likert scale. Using purposive sampling, the study collected relevant data from 391 respondents consisting of different demographics in Pakistan, including students, employees, and business professionals. The results of both the measurement and structural model were obtained via Structural Equation Modeling executed through Smart-Partial Least Squares. The key findings describe that both cash and digital payments have significant effects on payment behavior. The results further demonstrate the significant moderating role of self-control, strengthening the hypothesized relationship between payment methods and payment behavior. The findings contribute to the empirical research on mental accounting theory and add to behavioral finance literature by revealing how the different payment modes accelerate or slow down spending. The results also guide individuals, practitioners and institutions to enable self-control mechanisms that will help curb overspending.*

Keywords*: Payment methods, Payment behavior, digital payments, cash payments, self-control, mental accounting theory, Pakistan.*

Introduction

Rapid technological advancements have immensely transformed many aspects of human life, changing behavior, interactions, payment modes, and even decision-making (Vernyuy, 2024). The new changes range from daily activities to leisure activities, to financial matters and even to spending patterns (Shah et al., 2024). The technology has widened the payment patterns and enlarged the consumers' choices to pay in cash or online using digital methods.

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Digital payment solutions, online banking platforms, and e-commerce systems have profoundly influenced the ways people purchase and spend thus shifting the retail and entertainment industries from bricks-and-mortar to click-and-mortar (Far et al., 2023; Khan, 2022). Such innovations facilitate consumers' payment behavior that is easier and more convenient but complex in today's digital age.

In contrast to the technologically advanced countries, the developing countries continue to heavily rely on traditional payment practices (Hassoun et al., 2023). For example, cash payments are still dominant today because of the unavailability of financial services, worries about digital security, and cultural barriers to the acceptance of digital technologies. Though online payment systems like mobile wallets and Internet banking are popular today, a large number of people in developing economies still prefer cash for transactions having a psychological attachment to it. This belief aligns with the findings of Khan and Craig-Lees (2009) who identified an emotional attachment, individuals have to physical money. Cash payments are particularly significant as they help consumers reconsider their spending decisions both at the time of withdrawal and at the point of payment, thus it assists in curbing overspending tendencies. Soman (2003), segregated funds into categories based on payment methods and found differences in marginal propensity to spend between cash and credit. Trope and Liberman (2010) stated that digital payments have a deep psychological effect on consumers as they pay less attention to spending as compared with cash transactions.

According to the ECB (2023) survey, people use cash payments to monitor their expenses and reduce privacy concerns. Cash was used in 79% of point-of-sale transactions in 2016, but declined to 59% by 2022. A sizable number of respondents still preferred cash payments, showing the traditional love for physical currency. The digital payments ecosystem in Pakistan has grown exponentially, and the volume of transactions has reached PKR 6.4 billion during FY2024 from 4.7 billion during FY2023, with a growth rate of 35% (State Bank of Pakistan, 2024). The volume of transactions recorded a hefty increase from PKR 403 trillion to PKR 547 trillion during the year. Furthermore, the share of digital payments increased from 76% in FY2023 to 84% in FY2024. The Roshan Digital Account and RAAST payments in Pakistan have greatly accelerated the pace of the digital payment system (State Bank of Pakistan, 2024). Though digital payments are beneficial in several aspects like reduced transaction costs and time savings, they can lead to overspending (Shah et al., 2024). Digital payments are conceived as less painful compared to cash payments, which require a tangible exchange of money (Soman, 2003). The low pain with higher transaction utility can change consumers' minds to increased spending behavior (Thaler, 1999). Online cash transactions eliminate geographical constraints, offering consumers access to global markets while reducing costs associated with traditional commerce (Qian & Chen, 2023). However, concerns about overspending on digital transactions have been raised by academics and behaviorists.

Mental accounting theory provides a framework for understanding payment dynamics and behavior. It involves the cognitive categorization of financial activities into mental accounts, influencing how individuals perceive the costs and benefits of payments (Thaler, 1999). This framework challenges the principle of fungibility, which postulates that money is interchangeable and is treated the same irrespective of its source or use. The mental accounting theory suggests that individuals violate this principle, especially in payment methods. The three key components of mental accounting—outcome perception, activity categorization, and account evaluation frequency affect decision-making and spending behaviors. Sui et al. (2021) emphasized the overspending behavior of households: income overspending, expected overspending, and credit overspending, and correlated these behaviors with mental accounting elements such as wealth allocation and expenditure forecasting. In this context, the study introduces self-control as a moderator in managing

payment behavior, especially in digital transactions. It is the ability to regulate thoughts, emotions, and actions, which helps avoid impulsive spending (Gillebaart, 2018). Responsible consumption and financial stability can be achieved through self-control strategies such as judicious spending, monitoring payments, and using budgeting tools (LaRose & Eastin, 2002). Latest technological solutions such as tracking one's expenses, message alerts, and budgeting tools can enable consumers to better exercise control over their finances (Li et al., 2011).

This study addresses the gap by exploring the choices of cash and digital payments and their influence on spending behavior, particularly in the less-digitized Pakistani economy. The study is a prior one addressing the payment dynamics using mental accounting theory. In particular, the study is unique in highlighting and checking the moderation of self-control between payment method and payment behavior. Self-control, if maintained, can bring budget discipline and align payments with the mental budget. Pakistan is in the transition stage from a traditional to a digital financial system where the study's insights, particularly the moderation results add to the theoretical and practical relevance in the transformative economy. The findings offer a new outlook to understanding the different payment mechanisms and the psychological factors behind the excessive use of digital payments and behavior.

The introduction section is followed by the literature review where the main theory and all variables have been explained in detail along with the hypotheses. Section three explains the methodology enlightening the research design of the study. Section four is devoted to the results and analysis while the last section of the paper clarifies the discussion, conclusion, implications and limitations.

Literature Review

Theoretical Background

Mental accounting manifests an individual's tendency to consider and manage money in a personal and non-routine way. This is distinct from the general idea of how money should be treated as homogeneous and substitutable. This thinking pattern determines the way people ration, allocate, evaluate, and use their available financial resources (Thaler, 1999). According to Zhang and Sussman (2017), there has been an argument that people tend to segregate their financial activities into different mental accounts based on emotional links, sources, or purposes for which the funds will be used. For example, bonus money may be spent differently than salaries and cash-in transactions may result in different spending behaviors than digital payment. While organizations employ systematic accounting protocols to manage resources with precision and consistency, mental accounting offers a contrasting, informal approach used by individuals. This phenomenon explains variations in spending habits, particularly when comparing digital and cash payments, as digital transactions, being less tangible, often lead to higher expenditures. Research highlights that people tend to spend more freely when using digital payments, reflecting a relaxed attitude toward financial discipline. The three constituents of Thaler (1999) foundation theory of mental accounting include an emotional evaluation of decisions and outcomes, the categorizing of transactions into specific accounts, and mechanisms of periodic account reviews. These factors can explain how mental accounting, which often contradicts the principle that all money is equal and interchangeable (fungibility), influences the way people save, spend, and invest their money.

Technology has evolved significantly over the years and changed everyday life, including the way one may carry out financial transactions. Newly designed digital

payments, mobile application-based payments, and contactless payment methods become convenient, saving more money as well as safer. Mobile wallets and online banking further enable users to manage their costs easily while sometimes offering extra incentives such as discounts and bonuses (Khan et al., 2022). For instance, Huebner et al. (2020) studied that mobile app payment encourages greater self-control in financial spending with proper education toward cashless and resulted in saving households' spending. However, Hou et al. (2021), found contrasting evidence using CHFS data, which shows a 20.63% increase in expenditures among households switching to digital payments, mainly because of impulsive buying and weak self-control. Changing consumer behavior has also been documented, with Chatterjee and Rose (2012) noting that credit card users prioritize luxury and product features over costs compared to cash users. Shah et al. (2024) highlighted the moderating role of digital financial literacy in influencing spending habits. Similarly, Agarwal et al. (2019) observed increased consumer spending in India following the introduction of digital payment systems. These studies collectively illustrate that while digital payment technologies enhance convenience, they also significantly alter consumer spending patterns.

Despite the rise of digital payments, cash remains the preferred mode for many, especially in situations demanding privacy and security. Rogojanu and Badea (2014) emphasize that cash transactions safeguard personal data against potential breaches, making them inherently safer. Furthermore, cash payments elicit a stronger "pain of payment," fostering better spending control (Manshad & Brannon, 2021). The tangible nature of cash discourages overspending, as individuals are limited to their physical resources.

Self-control is an important psychological characteristic that influences financial decision-making. Traditionally, it refers to the ability to forgo greater immediate rewards in favor of larger long-term rewards (De Ridder et al., 2012; Duckworth et al., 2016; Inzlicht et al., 2021; Nilsen et al., 2020). Current research expands on this traditional definition to emphasize proactive strategies that anticipate and prepare for potential conflicts (de Ridder et al., 2011; Fujita, 2011; Galla & Duckworth, 2015; Gillebaart & de Ridder, 2015; Hofmann et al., 2012; Hoyle & Davisson, 2016) describe self-control as the regulation of behavior in accordance with one's personal goals and the norms of society. Although self-control manifests as a stable character trait, its instantiations can depend on context; for example, someone may demonstrate great workplace discipline yet be lax in personal financial management. Financial self-control represents the ability to control expenditure according to predetermined standards. Failures in this area, as described by Hoch and Loewenstein (1991), result from a clash between short-term desires and long-term financial goals, which are the reasons behind impulsive buying. According to DeHart et al. (2016), targeted financial education is highly effective in strengthening self-control; students who underwent such training made fewer emotional decisions. Ego depletion theories further add that people use self-control efforts in a prioritized manner, conserving energy for the most important areas. Domain-specific self-control aspects will allow researchers to better address financial behavior challenges and develop interventions that can promote economic well-being.

Hypotheses Development

Digital Payments and Payment Behavior

The rapid evolution of technology has transformed various aspects of daily life, especially in how people handle financial activities and transactions. Skare et al. (2023), pointed out that there are major changes in conducting business, managing finances, and streamlining monetary exchanges. Financial technologies are nowadays integrated into every aspect of human activity, such that a person can control electronic assets, receive insurance, borrow

online, buy or sell electronically, invest digitally, and pay digitally for an entire array of operations (Truong et al., 2023). Mobile payment systems, among other forms of electronic payments, have grown remarkably in use due to simplicity, affordability, convenience, safety, reduced cases of theft risks, easy ability to make international transactions, maintaining a record of transactions, and the benefits involved, such as rewards and discounts. Most observers believe that cash will become an obsolete tool for making payments one day, moving toward a cashless society (Islam et al., 2024). Similarly, Huebner et al. (2020) highlighted the way mobile applications have made credit and debit cards more convenient, which might result in lower spending in certain scenarios. In contrast, Hou et al. (2021) presented an alternative through a framework of mental accounting. They showed that electronic payment technologies are linked with higher spending, especially in households with less self-control. The most pronounced trend arises when credit cards are the payment mode, creating unanticipated costs. Chatterjee and Rose (2012) also found that digital payment systems have altered the consumer's pattern of behavior due to ease in making transactions and diminished psychological attachment towards cash. Financial technology is advanced with prospects, and soon, digital payments are going to be the modes of payment in consumer spending more than cash.

H1: *Digital payments are associated with higher levels of spending than cash payments.*

Cash Payments and Payment Behavior

Cash is still the basic medium of exchange in monetary transactions, which includes immediate settlement in cash and deferred payments. Still, in today's technology-driven world, digital payment has become the most prevalent way to carry out an online transaction. Even though this is the case, a significant proportion of payees still prefer and appreciate cash-based payments (ECB, 2023). Cash payments are generally preferred due to their intrinsic security benefits as they ensure protection of both personal information and financial assets from data breaches (ECB, 2023; Rogojanu & Badea, 2014). Manshad and Brannon (2021) noted that when people make purchases using cash, they are more likely to be cautious about spending. This can be explained by the psychological perception that cash transactions carry a sense of importance and discomfort, thereby encouraging more deliberate spending. However, using cash as a mode of payment has some disadvantages. These include increased costs, more effort, and longer processing times (Khan et al., 2017). The dependence on cash at the same time promotes more self-control by consumers since it puts some natural checks on expenditure. Physical currency restricts spending to the amount available in cash, and there is a lesser tendency to spend beyond budgeted allocations. It acts as an inhibitor of impulsive purchasing behavior. In contrast, past research shows that the usage of digital payment channels leads individuals to be more vulnerable to an increase in expenses rather than cash (Ahn & Nam, 2022; Hou et al., 2021). Accordingly, we hypothesize that:

H2: *Cash payments are associated with reduced levels of spending than digital payments.*

Moderating Effects of Self-Control

Self-control addresses the ability to control impulses, emotions, and actions under long-term goals and values. This trait contributes enormously to a wide range of positive life outcomes, including good health, better educational performance, and more economic stability, as indicated by (Moffitt et al., 2011; Tangney et al., 2004). Conversely, a lack of self-control

results in undesirable behaviors such as overspending, addiction, and mismanagement of finances, which can have detrimental effects on both individual and societal well-being (Denson et al., 2011; Özdemir et al., 2014; Pearson et al., 2018). Self-control is the most significant aspect when comparing cash and digital payments. Cash has a physical attribute that gives an individual a psychological "pain of paying." It is this awareness that motivates those with high self-control to make decisions that are more in line with their long-term goals. The act of spending cash inherently serves as a check against impulsive purchases, and people can adhere more effectively to their budgetary constraints. These results are consistent with studies that indicate individuals with greater self-control tend to exhibit responsible financial behaviors, focusing more on basic needs rather than discretionary spending (Hofmann et al., 2012).

On the other hand, digital payments make transactions less tangible, making the act of spending seem less real and weakening its psychological effect. The convenience and ease of digital transactions can even undermine self-regulation for individuals with the highest levels of self-control. According to research, the frictionless aspect of electronic payment tends to reduce resistance to expenditure; that is, people tend to spend more, especially if not having strong self-regulatory measures (Soman & Cheema, 2001). Although people with strong self-control may utilize such mechanisms as budgeting apps or spending alerts to reduce the risk, the inherent issues in electronic payments cannot be avoided altogether.

Self-control amplifies the positive effects of cash payments by curbing impulsive spending. However, its moderating role in digital payments is more nuanced. While self-control can mitigate some risks of overspending, the design of digital payment systems inherently challenges consumers' self-regulatory capacities. Such dynamics stress the significance of viewing self-control as an environment-conditioned, rather than static, trait. Interventions that help enhance self-control, such as mindfulness training or the use of digital tools for financial planning, may enhance responsible spending in a cashless economy. With such discoveries, financial institutions and policy can then craft payment systems and educational programs to instill mindful spending among consumers as a way of supporting the same in achieving financial well-being (Baumeister et al., 2007) In conclusion, self-control can moderate the connection between different payment methods and payment behavior. For cash payments, high self-control strengthens the congruence of spending with long-term goals, thus encouraging disciplined financial habits. In digital payments, self-control somewhat reduces impulsivity, but the design of digital systems still poses challenges to self-regulation. This calls for strategies that address individual traits such as self-control and systemic factors influencing financial decision-making.

H3a: *Self-control positively moderates the cash payments and payment behavior relationship.*

H3b: *Self-control negatively moderates the digital payments and payment behavior relationship.*

The conceptual model of the study is given below in Figure 1.

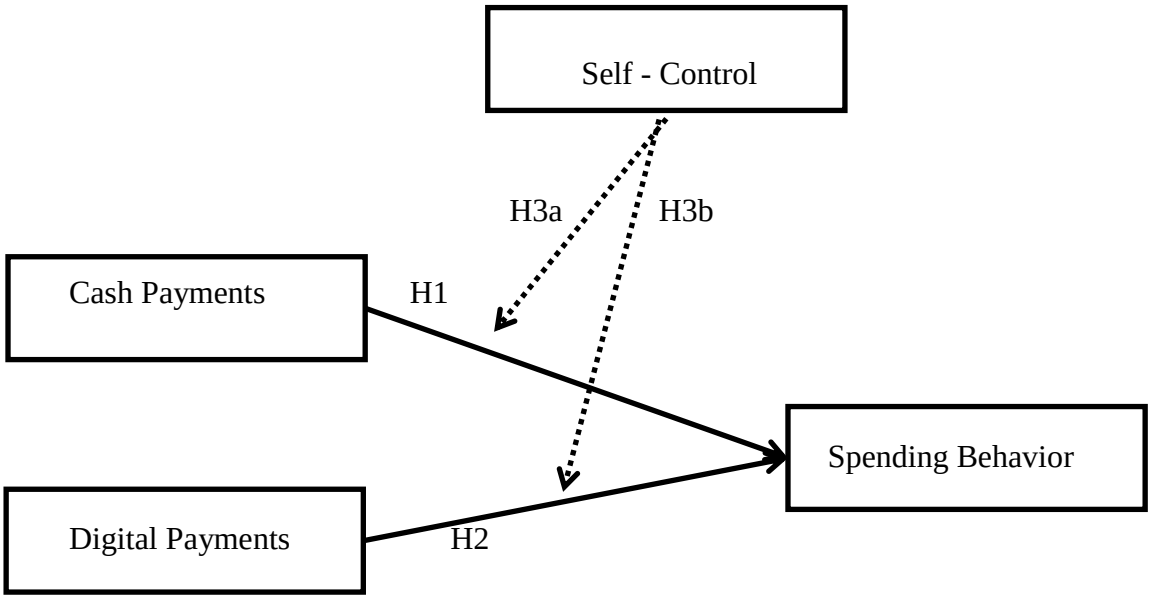

Figure 1: Model of the study

Methodology

Data Collection and Ethics

To meet the research objectives, a quantitative methodology was applied where primary data was collected through adapted questionnaires to assess the effects of different payment options on consumers' payment behavior. To this end, a total of 391 individuals participated in the data collection process. We used a purposive sampling technique as it was most suitable in our context where participants were selected based on predefined criteria. The sampling approach focused on those individuals who had some familiarity with digital payment services and were experienced in using both digital and physical payment methods. These participants were deemed more likely to engage in mental accounting practices due to their regular use of diverse payment options. Participants were chosen with confidence that they were knowledgeable and active users of digital financial services. Data was collected from a diverse group of students and staff members of various universities and postgraduate colleges across Pakistan, employees from public and private organizations, and managers and business owners from different cities. All participants met the predefined eligibility criteria. In total, 450 questionnaires were distributed, of which 391 were returned in complete and valid form. The demographic details of the respondents are summarized in Table 1 and Figure 1.

The questionnaire was created using Google Forms, a digital platform for creating surveys. Once finalized, the link to the Google Form was shared with potential respondents via different online sources. The online sources were chosen due to their widespread use and ease of access among the target population. The researcher included an introductory section in the questionnaire explaining the purpose of the study, ensuring informed consent from participants. Respondents were provided detailed instructions to complete the questionnaire, and they were encouraged to contact the researcher if they faced any issues or had questions

about the survey. This method enabled reaching participants efficiently from diverse locations across Pakistan while maintaining convenience for both the researcher and the respondents.

According to Hair et al. (2014), the appropriate sample size consists of 5 to 8 times the total number of indicators. The selected sample size of 391 responses was considered sufficient for this analysis. Data collection started in May 2024 and ended in the mid of July 2024. Ethical standards were followed while collecting data. We informed all the participants about the study's aim and guaranteed that the responses would be utilized solely for this study. After obtaining informed consent, participants were requested to complete the survey. Their anonymity was preserved and participation was entirely voluntary. The questionnaire of this study was developed carefully and free from leading or sensitive questions. Before data processing, various measures were taken to ensure the anonymity of participants by considering all the principles related to research ethics such as: avoiding harm to participants; responding at their own will, no time pressure as they can do it in their free time, and a proper approval was taken from the relevant bodies before the data collection.

Measurements

The questionnaire had two major sections. The first section was concerned with obtaining the demographic information of the respondents, while the second one was concerned with measuring the main latent variables that were to be investigated. The measurement items used in the study are based on established literature, which was adapted for this research framework. Cash payments signify the use of physical currency, like paper notes and coins, as a means for making monetary transfers. In the context of the present research, this term symbolizes a concrete form of payment to which consumers pay out actual money. Cash expenditure is believed to have a psychological effect on more spending than is the case under cashless purchases because of the perceived "pain of payment. The items related to cash payments used in the study for data collection are adapted from the study (Raghubir & Srivastava, 2008). All the non-physical payment methods conducted through online or electronic platforms are included in digital payments. These include debit/credit card payments, mobile wallet transfers such as EasyPaisa and JazzCash, online banking, and app-based transactions. Digital payments are considered to be less tangible compared to cash payments, thus possibly reducing the immediate psychological effect of spending. This study analyzes how digital payments affect consumer behavior differently than cash payments. The questionnaire used for this study is adapted from Raghubir and Srivastava (2008) with the inclusion of specific items tailored for measuring the influence of digital payments on payment behavior in Pakistan. Self-control is the ability to regulate and manage impulses, desires, or behaviors, especially in situations requiring postponed gratification. In the context of this study, self-control centers on consumers' self-regulation of their capabilities to resist the temptation to overspend despite having the accessibility of different payment methods. Measurement items for self-control were adapted from Haws et al. (2012), focusing on the role of self-regulation in payment-related decisions. Spending behavior is how individuals tend to spend their money. It means the amount, frequency, and type of spending. Items related to spending behavior were taken from the study of (Setiawan et al., 2022). To test these adaptations, a focus group was conducted, including four academics and three industry experts in the group. According to Kline (2023), for checking how sensible the amendments made were, whether such amendments applied or not, and if these amendments were well framed, some experts were consulted. Their comments also had a key role in checking the questionnaire's reliability, validity, and simplicity of use. For terminology mostly used in digital payment applications in Pakistan, much caution was exercised to ensure clarity to

make such a questionnaire clearer, more reliable, and simpler to be understood by respondents. Likert scale was used with a 7-point scale, where 1 represented "Strongly Disagree" and 7 represented "Strongly Agree." This is in line with common practices in behavioral finance research and captures subtle responses from participants effectively (Joshi et al., 2015). The reliability of statistical analysis and the quality of data obtained also improved. To ensure uniformity in interpreting the responses, reverse coding was used for some items in the questionnaire.

Table 1. Respondents' Characteristics

Characteristics	Frequency	Cumulative Frequency	Percentage (%)
Gender			
Female	25	25	6.4
Male	366	391	93.6
Marital Status			
Single	161	161	41.2
Married	230	391	58.8
Age			
Below 24	94	94	24.0
25-30	89	183	22.8
31-35	131	314	33.5
36-40	58	372	14.8
Above 40	19	391	04.9
Education			
Intermediate	20	20	05.1
Bachelors	227	247	58.1
Masters	113	360	28.9
Doctorate Degree	31	391	07.9
Experience			
< 3 Years	173	173	44.2
3-6 Years	164	337	41.9
6-9 Years	54	391	13.8
Income			
Below Rs.50,000	151	151	38.6
50,000 – 100,000	155	306	39.6
100,000- 150,000	57	363	14.6
150,000- 200,000	15	378	3.8
Above 200,000	13	391	3.3
Total Assets			
Below Rs.500,000	137	137	35.0
500,000 – 1,000,000	98	235	25.1
1,000,000- 1,500,000	39	274	10.0
1,500,000- 2,000,000	23	297	5.9
Above 2,000,000	94	391	24.0

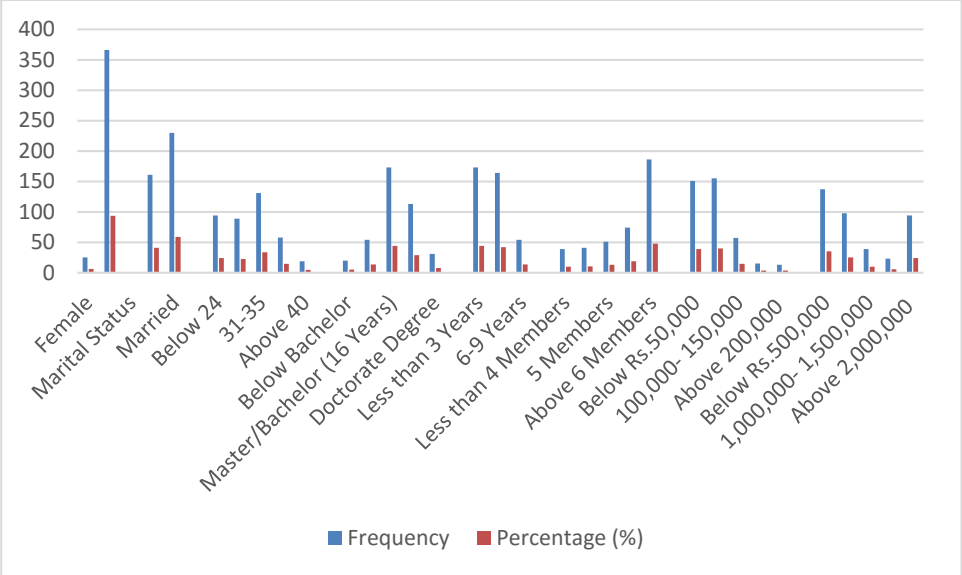

Figure 1: Demographics

Data Analysis

The proposed framework is analyzed by employing the Structural Equation Modeling with Smart Partial Least Squares, version 4. Hair Jr et al. (2021) explained that PLS-SEM structural has gradually become the most recommended statistics technique applied in research across social and management sciences because of its flexibility and effectiveness. Reinartz et al. (2009) recommend the use of the Partial Least Squares (PLS) approach for cause-and-effect relationships. In addition, Chin et al. (2003) emphasize the applicability of PLS in testing for interaction effects. For this research, Principal Component Analysis was selected as an appropriate methodology. We completed the analysis in two different steps by assessing the measurement model and then testing the hypothesis to check the proposed relationships.

Results

Normality of data and common method bias

The original dataset's normality was tested with Skewness and Kurtosis. Table 2 indicates that values lie in an acceptable range of ±2; this ascertains the data's normal distribution, as postulated by (George & Mallery, 2010). With this cross-sectional nature of analysis, Common Method Bias (CMB) is controlled in this study as well. Harmon's one-factor test, which is the most frequently used test, showed that the first factor explained 39.72% of the variance, and it was below the 50% threshold (Podsakoff et al., 2003). The result signifies a minimal CMB impact on the results of the study.

Results of Measurement Model

The measurement model was assessed via Confirmatory Factor Analysis using the guidelines of (Hair et al., 1998). The analysis considered establishing content, discriminant, and convergent validity that ensures the appropriateness of the developed model. Content validity was guaranteed through a thorough review of available literature and a preliminary evaluation of the questionnaire for the survey. Within this process, items whose Factors Loading (FL)

were considered low were removed. Convergent validity was established using FL, Cronbach's alpha, CR, and AVE. The following acceptable thresholds were defined to determine FL ≥ 0.60, Cronbach's alpha, CR ≥ 0.70 and AVE ≥ 0.50, according to standards defined by Hair et al. (1998) and Nunally and Bernstein (1978). As shown in Table 2, the values for FL, CR, and AVE fell within the acceptable ranges, confirming strong convergent validity.

Table 2. Results of the Measurement Model

	Items	FL	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (CR)	Average variance extracted (AVE)
Cash Payment	CP3	0.685	0.795	0.796	0.859	0.55
	CP5	0.735				
	CP6	0.802				
	CP7	0.729				
	CP8	0.751				
Digital Payment	DP10	0.679	0.879	0.882	0.905	0.544
	DP11	0.721				
	DP2	0.738				
	DP3	0.816				
	DP4	0.722				
	DP6	0.8				
	DP7	0.754				
	DP9	0.654				
Spending Behavior	SB1	0.787	0.92	0.924	0.936	0.676
	SB2	0.846				
	SB3	0.831				
	SB4	0.806				
	SB5	0.853				
	SB6	0.809				
	SB7	0.822				
Self-Control	SC1	0.785	0.944	0.946	0.952	0.664
	SC10	0.825				
	SC2	0.82				
	SC3	0.805				
	SC4	0.766				
	SC5	0.725				
	SC6	0.854				
	SC7	0.85				
	SC8	0.847				
	SC9	0.864				

Notes: CP = Cash Payment, DP = Digital Payment, SB = Spending Behavior, SC = Self-Control

Discriminant validity was assessed using multiple approaches, including an analysis of correlations between constructs (Fornell & Larcker, 1981), verification of consistent cross-loading (Liu et al., 2016), and the Hetero Trait - Mono Trait (HTMT) ratio method (Henseler et al., 2015). As presented in Table 3, the results confirm adequate discriminant validity. This criterion was established by Fornell and Larcker (1981), who proposed that discriminant validity was present when the square root of Average Variance Extracted (AVE) was greater than its correlation values.

Table 3. Fornell and Larcker

	CP	DP	SB	SC
CP	0.742			
DP	0.712	0.737		
SB	0.563	0.636	0.822	
SC	0.688	0.713	0.51	0.815

Notes: CP = Cash Payment, DP = Digital Payment, SB = Spending Behavior, SC = Self-Control

Liu et al. (2016) stated that discriminant validity is established in cases where cross-loading is less than the factor loading for each construct. It is shown in Table 4.

Table 4. Cross Loadings

	CP	**DP**	**SB**	**SC**
CP3	**0.685**	0.488	0.41	0.405
CP5	**0.735**	0.488	0.445	0.455
CP6	**0.802**	0.658	0.435	0.618
CP7	**0.729**	0.521	0.4	0.407
CP8	**0.751**	0.612	0.396	0.668
DP10	0.639	**0.679**	0.449	0.549
DP11	0.579	**0.721**	0.485	0.496
DP2	0.666	**0.738**	0.491	0.634
DP3	0.642	**0.816**	0.498	0.659
DP4	0.431	**0.722**	0.488	0.455
DP6	0.515	**0.8**	0.443	0.474
DP7	0.518	**0.754**	0.504	0.48
DP9	0.378	**0.654**	0.365	0.437
SB1	0.395	0.476	**0.787**	0.4
SB2	0.436	0.55	**0.846**	0.434
SB3	0.435	0.481	**0.831**	0.33
SB4	0.374	0.441	**0.806**	0.331
SB5	0.483	0.55	**0.853**	0.466
SB6	0.518	0.566	**0.809**	0.422
SB7	0.563	0.565	**0.822**	0.513
SC1	0.567	0.569	0.455	**0.785**
SC10	0.571	0.562	0.345	**0.825**
SC2	0.582	0.612	0.488	**0.82**
SC3	0.569	0.596	0.372	**0.805**
SC4	0.571	0.535	0.409	**0.766**
SC5	0.467	0.514	0.39	**0.725**
SC6	0.563	0.607	0.431	**0.854**
SC7	0.561	0.59	0.415	**0.85**
SC8	0.56	0.609	0.42	**0.847**
SC9	0.589	0.6	0.387	**0.864**

Notes: CP = Cash Payment, DP = Digital Payment, SB = Spending Behavior, SC = Self-Control

The HTMT method suggests that when HTMT values are below 0.85, discriminant validity is adequate. All the values in Table 5 fall within this threshold, thus validating very high discriminant validity.

Table 5. HTMT

	CP	DP	SB	SC
CP				
DP	0.758			
SB	0.65	0.697		
SC	0.795	0.779	0.535	

Notes: CP = Cash Payment, DP = Digital Payment, SB = Spending Behavior, SC = Self-Control

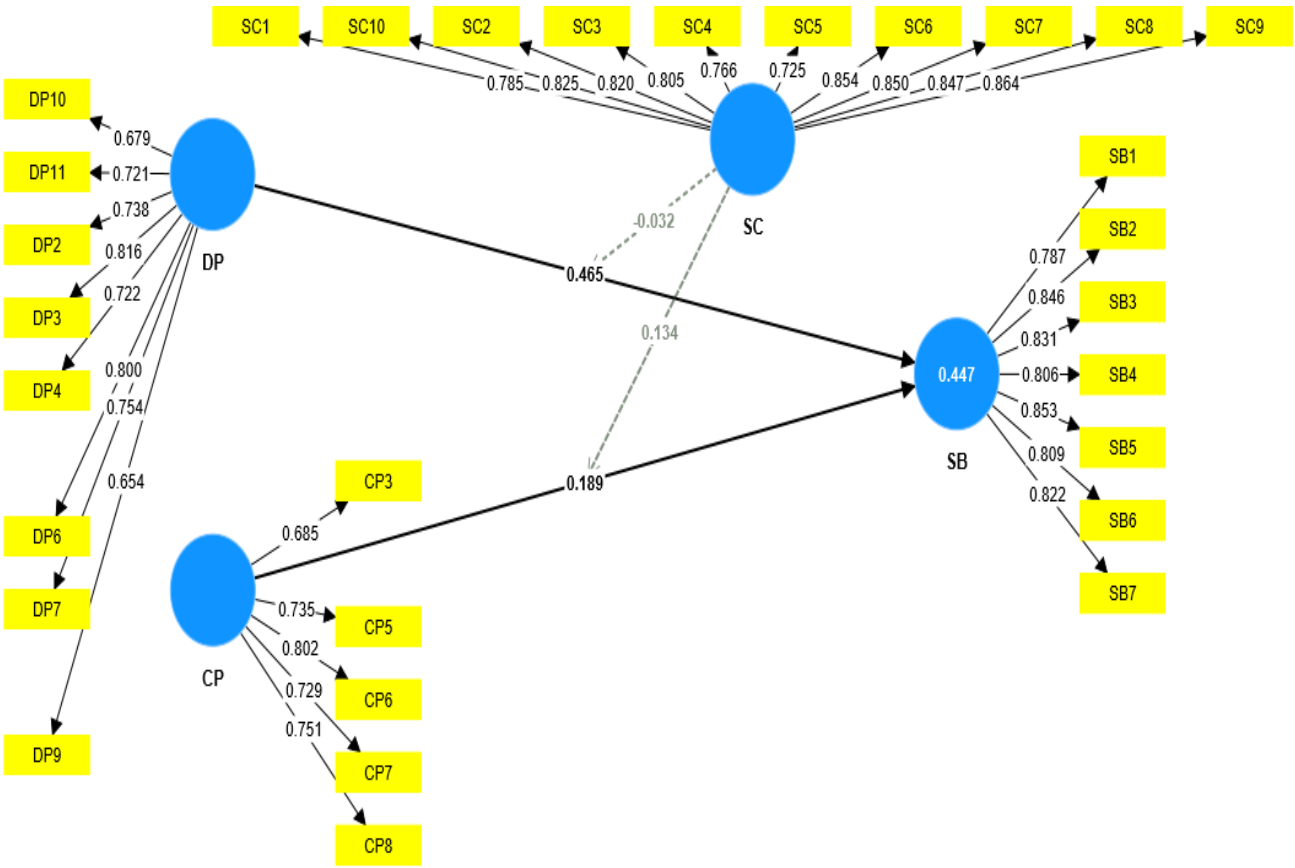

Figure 2: Measurement Model

Structure model

The structural model was evaluated to test hypothesized relationships between latent variables using PLS, and the mediating effect of a construct was analyzed through bootstrapping. Having ensured the measurement model, the study proceeded to apply the inner structure model and tested the hypotheses with bootstrapping methods taking 5000 sub-samples in Smart PLS 4. Table 6 and Figure 2 display the results, showing a significant positive impact of digital payments ($\beta = 0.465$, $p < 0.01$) and cash payments ($\beta = 0.189$, $p < 0.01$) on payment behavior. The results support hypotheses 1 and 2. The study also finds that the interaction effect of self-control was significant between digital payments and consumer payment/spending behavior at ($\beta = -0.032$, $p < 0.01$) and ($\beta = 0.134$, $p < 0.01$). Hence, H7a and H7b are supported

Table 6 Hypotheses Results

Hypotheses	Relationship	B	SE	T value	P value	F^2
1	**DP --> SB**	0.465	0.068	6.829	0.000	0.025
2	**CP -> SB**	0.189	0.067	2.829	0.005	0.143
	Moderation/Indirect results					
3a	**SC x DP -> SB**	-0.032	0.010	-3.103	0.002	
3b	**SC x CP -> SB**	0.134	0.050	2.668	0.008	
	R-square		**R-square adjusted**			
SB	0.447		0.441			

Discussion

This study examined how different payment methods affect the spending behavior of consumers, with the mental accounting hypothesis forming the basis of the work. It focused on exploring how digital and cash payments influence spending and examined whether self-control plays a moderating role in these relations. The results confirm the postulated associations, thus substantiating the theory of mental accounting, which postulates that people spend more when they use digital payment methods. The sum of digital and cash payments, together with Self-Control, accounts for 44.7% of the variance in spending behavior (R^2).

Hypothesis 1: Digital Payments → Spending Behavior: The analysis proved a positive and strong relationship between digital payments and consumers' spending behavior with a β of 0.465 and a P-value of 0.000. This outcome supports the mental accounting theory as digital payments decrease psychological costs, such as perceived spending control, and thereby lead to greater spending. Consumers feel that they do not spend money digitally because it is intangible; thus, there is less self-control and greater impulsive spending. The outcomes align with prior studies (Shah et al., 2024), where it was established that the effects of digital payments on spending behavior were stronger.

Hypothesis 2: Cash Payments → Spending Behavior (SB): A positive, though relatively weaker relationship, exists between cash payments and spending behavior, as evident by β being 0.189, and P-value being 0.005. This means that although cash payments are still positive for spending, their contribution is not significant as per the physical nature of cash. Cash, being tangible, promotes more controlled spending, with the existence of physical cash imposing mental accounting constraints and reducing impulsive behavior to control spending. This finding is consistent with (Hou et al., 2021), who indicated that with cash transactions, a more controlled expenditure behavior ensues.

Hypothesis 3a: Self-Control × Digital Payments → Spending/payment Behavior (SB): The interaction term self-control × digital payments had a β of -0.032 and a P-value of 0.002. This means that higher levels of self-control negatively moderate the relationship between digital payments and spending behavior. For those with high self-control, they are more likely to control their spending even when there is convenience and ease with digital payments. Thus, for most, digital payments facilitate more spending, but for those with stronger Self-Control, they spend less.

Hypothesis 3b: Self-Control × Cash Payments → Spending Behavior (SB): The interaction term Self-Control × Cash Payments had a β of 0.134 and a P-value of 0.008. This indicates a positive moderating effect of Self-Control in the stated relationship between cash payments and spending behavior. Individuals with higher Self-Control tend to exert greater discipline in cash-based transactions, leading to lower levels of impulsive spending and more controlled spending behavior.

The results suggest that both payment methods significantly positively influence consumer spending; however, digital payments have more impact, which is in line with mental accounting theories. The results of this study are consistent with the results of the previous study, showing the higher impact of digital payments on spending behavior (Shah et al., 2024), Analogous results from the 2017 China household survey also affirm this, reporting a 20.63% rise in expenditure associated with digital payment methods (Hou et al., 2021). The results show the benefits of electronic payment systems: convenience, time-saving, less effort, and congruence with the mental accounting framework, which increases consumer spending. In contrast, cash transactions have the drawbacks of being less accessible and effortful to process, and spending is limited by the amount of cash available, which in turn promotes more disciplined financial behavior.

The role of self-control can be understood by behavioral economics and psychology as the major moderating factor in the relationship between digital payments and spending habits. Self-control refers to a person's ability to control their impulses, exercise careful choices, and focus on long-term objectives instead of gratifying short-term ones. In the context of digital transactions, the ease, speed, and convenience they offer may reduce psychological barriers to spending. The interaction effects of Self-Control in the cash payments-spending behavior relationship could be explained by the fact that people with higher levels of Self-Control tend to behave more disciplined and goal-oriented in their financial affairs. When dealing with cash, which involves a more direct and immediate transfer of money, those with stronger levels of Self-Control are bound to exercise restraint, not make impulsive purchases, and make more conscious choices about spending. This leads to lower spending behavior associated with cash transactions.

Conclusion and Implications

Conclusion

This study focuses on analyzing the impacts of payment channels, being cash and digital, in determining consumer spending behaviors. The basic theoretical lens of the study is the mental accounting theory which psychologically categorizes the use of money. With the help of a survey, we gathered 391 valid responses. Using the PLS-SEM techniques, the study found that payments made using digital channels and cash have a profound impact on payment behavior. Self-control contingently affects the path of payment methods and payment behavior. The study concludes that digital payments swiftly lead to more spending than cash payments as digital payments are speedier and more convenient, while self-control, the moderator, alters the speed of payments. Consumers with high self-control behavior show a more disciplined stance in spending, especially in cash transactions. This study contributes to the theoretical understanding of behavioural finance by addressing the psychological biases associated with payment methods, especially in the context where the economy is shifting to digitizations. The study highlights the need for the latest technologies and associated literacy to ensure that consumers are well-versed with the advantages of digital payments. Consumers should understand how to use the built-in features of the digital system so that they can use online payments while saving and managing their finances.

Theoretical and Practical Implication

This study extends the theoretical body of knowledge by adding to the empirical research on the mental accounting framework and emphasizing the moderating role of self-control in the relationship between payment methods, cash and digital payments and consumer spending

behavior. By incorporating insights from behavioral economics and psychology, the article brings out the different spending patterns associated with different means of payment, showing how digital payments lead to spending more because they are considered easy and reduce psychological barriers when spending, while cash expenditure encourages people to spend judiciously and deliberately in their spending because it involves something tangible and limited. Furthermore, the study advances knowledge about self-control as an important moderator, showing that the better the self-control of an individual, the better they are at regulating their spending, especially when dealing with digital payments, in which impulsivity tends to be higher. These results point out the importance of personal traits in financial decision-making, indicating that interventions aiming to improve financial behavior should account for individual differences in self-control.

This study provides pragmatic advice to policymakers, financial institutions, and consumers on how to foster informed financial behaviors. Governments can manage campaigns to aware public about the potential benefits of using digital payments as they are safe, convenient, effective and quick in financial planning or budgeting. The study highlights the importance of self-control through initiating a spending alert system, and knowledge about the categorization of different transactions, like financial literacy. The self-control mechanism will boost individual and institutional financial management practices. Regulators of digital payment systems should be highly professional in providing consumers with state-of-the-art facilities with a high level of security. Reminders, personalized recommendations, and real-time guidance can help consumers to manage their spending in a better way.

Limitations of the Study

The study is insightful and more relevant in the digital age as there is a steady improvement in digital payment and its infrastructure, especially the psychological concerns of consumers. But at the same time, there is no way to acknowledge some of the limitations. The cross-sectional design is a limitation of the study as it may not track long-term behavioral trends, suggesting a robust need for longitudinal research. The study can be validated in other countries with similar digital infrastructure or with more control variables in developed countries. Future research could further examine the influence of bonuses or other irregular earnings with varied financial contexts. Cross-cultural research is also important because cultural factors determine the perceptions of payments and spending. More mediating or moderating mechanisms can better test the applicability of the mental accounting theory.

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